

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

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**TULARE COUNTY  
EAST OROSI WATER  
SUPPLY PROJECT**



OCTOBER 2023

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# INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

## TULARE COUNTY EAST OROSI WATER SUPPLY PROJECT

### **Prepared for:**

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**TABLE OF CONTENTS**

*Mitigated Negative Declaration*..... 1

**SECTION 1 - Introduction**..... 1-1

1.1 - Overview ..... 1-1

1.2 - California Environmental Quality Act ..... 1-1

1.3 - Impact Terminology..... 1-1

1.4 - Document Organization and Contents..... 1-2

1.5 - Regulation Incorporated by Reference..... 1-2

**SECTION 2 - Project Description**..... 2-1

2.1 - Introduction/Background ..... 2-1

2.2 - Project Location..... 2-1

2.3 - Project Environment..... 2-2

2.4 - Proposed Project..... 2-6

2.5 - Project Components..... 2-6

    Water Well..... 2-6

    300,000-Gallon Water Storage Tank..... 2-7

    East Orosi Distribution System Replacement..... 2-7

    Distribution System Connection ..... 2-7

    Annexation/Consolidation..... 2-8

2.6 - Associated Facilities..... 2-8

2.7 - Alternatives ..... 2-9

2.8 - Comprehensive Response to Climate Change ..... 2-9

**SECTION 3 - Initial Study**..... 3-1

3.1 - Environmental Checklist ..... 3-1

3.2 - Environmental Factors Potentially Affected ..... 3-5

3.3 - Determination ..... 3-5

3.4 - Evaluation of Environmental Impacts ..... 3-7

    3.4.1 - Aesthetics ..... 3-9

    3.4.2 - Agriculture and Forestry Resources ..... 3-13

    3.4.3 - Air Quality ..... 3-18

    3.4.4 - Biological Resources ..... 3-26

    3.4.5 - Cultural resources..... 3-39

    3.4.6 - Energy..... 3-43

    3.4.7 - Geology and Soils..... 3-46

    3.4.8 - Greenhouse Gas Emissions..... 3-56

    3.4.9 - Hazards and Hazardous Materials..... 3-59

    3.4.10 - Hydrology and Water Quality ..... 3-65

3.4.11 - Land Use and Planning .....	3-73
3.4.12 - Mineral Resources.....	3-75
3.4.13 - Noise .....	3-77
3.4.14 - Population and Housing.....	3-81
3.4.15 - Public Services.....	3-83
3.4.16 - Recreation .....	3-87
3.4.17 - Transportation .....	3-89
.....	3-89
.....	3-89
.....	3-89
.....	3-89
3.4.18 - Tribal Cultural Resources.....	3-92
3.4.19 - Utilities and Service Systems .....	3-95
3.4.20 - Wildfire.....	3-99
3.4.21 - Mandatory Findings of Significance .....	3-102
<b><i>SECTION 4 - Mitigation, Monitoring and Reporting Plan .....</i></b>	<b><i>4-1</i></b>
<b><i>SECTION 5 - List of Preparers .....</i></b>	<b><i>5-1</i></b>
<b><i>SECTION 6 - References.....</i></b>	<b><i>6-2</i></b>

**LIST OF FIGURES**

Figure 2-1 Regional .....	2-3
Figure 2-2 Project Area.....	2-4
Figure 2-3 Utility Districts .....	2-5

**LIST OF TABLES**

Table 3.4.3-1 Industrial Projects SPAL Reference Sizes .....	3-19
Table 3.4.3-2 SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants .....	3-20
Table 3.4.3-3 Construction Emissions .....	3-21
Table 3.4.3-4 Total Project Operational Emissions .....	3-22
Table 3.4.3-5 Sensitive Receptors Located < One Mile of New Wellsite.....	3-23
Table 3.4.3-6 Sensitive Receptors Located < One Mile of New Water Storage Tank.....	3-24
Table 3.4.3-7 Potential Maximum Impacts Predicted by HARP.....	3-25

**LIST OF APPENDICES**

Appendix A: Preliminary Engineering Report and Supplemental Preliminary Engineering Report	
Appendix B: Small Project Analysis Level Assessment	
Appendix C: Biological Analysis Report	

Appendix D: Cultural Report  
Appendix E: Geotechnical Report  
Appendix F: Water Demand Memorandum

## **MITIGATED NEGATIVE DECLARATION**

As Lead Agency under the California Environmental Quality Act (CEQA), Tulare County has reviewed the proposed Project described below to determine whether it could have a significant effect on the environment because of its development. In accordance with CEQA Guidelines Section 15382: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

### ***Project Name***

East Orosi Water Supply Project

### ***Project Location***

The proposed Project contains two separate, discontinuous sites and are located within the unincorporated communities of Orosi and East Orosi in Tulare County, California. The first Project area will include a new well with a 12-inch water main pipeline that begins at Avenue 408 (west of Avenue 412) and runs north on Road 128 (State Route [SR] 63), ending south of Avenue 412 where it will connect to an existing pipeline in Orosi. The second Project area location will contain a new water tank with a new 12-inch pipeline beginning on Lone Road and running south to Avenue 416 and ends east of Road 130.

### ***Project Description***

The proposed Project will have five major components: (1) installation of a new well located in the Orosi Public Utility District (OPUD); (2) installation of a new 300,000-gallon storage tank located in the East Orosi Community Service District (EOCSD); (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi and (5) consolidate the EOCSD drinking water customers and the Family Education Center into OPUD. The new production well will provide a compliant water supply in an amount sufficient to meet the needs of East Orosi, Culter-Orosi Joint Unified School District (COJUSD) and if desired, to provide a supplemental water source for Orosi and Culter. An annexation of the EOCSD service area into the OPUD is also required.

In addition, the proposed Project would include replacement of meter boxes within EOCSD, installation of metered service connections and new fire hydrants, and abandonment of both EOCSD wells. The proposed Project will provide clean, reliable, potable water to the residents of East Orosi. The proposed Project will allow the EOCSD to meet current water demand without increasing water demand or inducing growth in the community.

## **Mailing Address and Phone Number of Contact Person**

Tulare County Resource Management Agency  
5961 S Mooney Blvd  
Visalia, California 93277  
Hector Guerra – Chief Environmental Planner

## **Findings**

As Lead Agency, Tulare County finds that the Project will not have a significant adverse effect on the environment. The Initial Study (IS) (see *Section 3 - Environmental Checklist*) identified one or more potentially significant effects on the environment, but revisions to the Project have been made before the release of this Mitigated Negative Declaration (MND) or mitigation measures would be implemented that reduce all potentially significant impacts less than significant levels. The County further finds that there is no substantial evidence that this Project would have a significant effect on the environment.

## **Mitigation Measures Included in the Project to Avoid Potentially Significant Effects**

**AES-1 Lighting:** Any Project lights shall be designed to ensure all lighting will be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

**BIO-1 Pre-Construction Survey(s) for San Joaquin Kit Fox:** Prior to ground-disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey between 14 and 30 calendar days prior to the onset of construction. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, nesting birds, and other special-status species or their sign. The preconstruction survey shall be walked by no greater than 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency.

Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*. Occupied dens shall not be excavated but must be avoided by a buffer of 100 feet, or 250 feet if pups are present.

**BIO-2 Training/Awareness/Education for Special Status Species:** Prior to ground-disturbance activities, or within one week of being deployed at the Project site for newly hired workers, all construction workers at the Project site shall attend a Construction

Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of “take” under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed.
- A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain onsite for the duration of construction activities.

**BIO-3 Minimization for Swainson’s Hawk:** The following measures shall be implemented to reduce potential impacts to Swainson’s hawk: Nesting surveys for the Swainson’s hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley* (Swainson’s Hawk Technical Advisory Committee, 2000). If potential Swainson’s hawk nests or nesting substrates are located within 0.5 mile of the Project area, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson’s hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site:

- One visit during January 1–March 20 to identify potential nest sites
- Three visits during March 20–April 5
- Three visits during April 5–April 20
- Three visits during June 10–July 30

A fewer number of visits may be permissible if deemed adequate by the County after consultation with a qualified biologist. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground-disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted. No surveys are required if all construction work will occur during the non-breeding season (September 30 to February 15).

If Swainson’s hawks are found to nest within the survey area, active Swainson’s hawk nests shall be avoided by 0.5 mile during the nesting period, unless this avoidance buffer is

reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson's hawk issues. If a construction-related activities area occurs within this nesting site, construction-related activities must be delayed until the young have fledged (left the nest). The 2,500-foot radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction-related activities do not disrupt breeding behaviors

**BIO-4 Pre-Construction Survey for Burrowing Owl:** A qualified biologist shall conduct a preconstruction survey on the Project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW's staff report on burrowing owl mitigation (CDFW, 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through non-invasive methods that either the birds have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

If burrowing owls are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement or occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction activities shall occur at a rate sufficient to detect burrowing owl, if they return.

**BIO-5 Avoidance/Minimization Raptors and Migratory Birds:** If construction is planned outside the nesting period for raptors (other than the Swainson's hawk and western burrowing owl) and migratory birds, no action shall be required. The nesting period for migratory birds and raptors is generally accepted to be from February 15 to August 31. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified onsite monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting

season, nesting bird surveys shall be repeated every 30 days when construction activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.

**BIO-6 Best Management Practices:** During all construction-related activities, the following Best Management Practices shall be implemented:

- a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.
- b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within the Project site.
- c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.
- d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- e. No pets, such as dogs or cats, shall be permitted on the Project sites to prevent harassment, mortality of kit foxes, or destruction of dens.
- f. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional Project-related restrictions deemed necessary by the

USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.

- g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.
- h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.
- i. All sightings of the San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.
- j. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6620 or (916) 414-6600.

**CUL-1 Encountering Cultural Materials:** If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource. Therefore, the Project would have a less than significant impact with incorporation of mitigation measures.

**CUL-2 Discovery of Human Remains:** If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential

Native American involvement, in the event of discovery of human remains, at the direction of the County Coroner.

**GEO-1: Vegetation Removal and Earthmoving Activities**

- a. The areas of proposed improvements shall be cleared of surface vegetation and debris. Materials resulting from the clearing and stripping operations must be removed and properly disposed of offsite. In addition, all undocumented fills should be removed where encountered and where fills or structural improvements will be placed.
- b. Where existing utilities, inlets, or underground tanks are present, they shall be removed to a point at least two feet horizontally outside the proposed foundation areas. Resultant cavities must be backfilled with engineered fill compacted in accordance with the recommendations presented in this report.
- c. Following the stripping operations, the areas where shallow foundations are proposed must be over excavated to a minimum depth of one foot below existing site grades or one foot below the bottom of the footing elevation, whichever is deeper. Over excavation shall extend laterally three feet beyond the edge of foundations for shallow footings. After over excavation, the bottom of the exposed soil shall be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. We recommend that non-expansive soil ( $EI < 20$ ) be used below the bottom of shallow foundations.
- d. For ring wall tank foundations, over excavation to a minimum depth of two feet below existing site grades or two feet below the bottom of the footing elevation, whichever is deeper. Because of the expansive material ( $EI > 20$ ) found at the storage tank site, either low expansive ( $EI < 20$ ) select onsite soils or low expansive ( $EI < 20$ ) import engineered fill shall be placed below the ring wall foundations. Over excavation should extend laterally three feet beyond the edge of the ring wall foundations. After over excavation, the bottom of the exposed soil will be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. Yielding areas should be observed by the geotechnical consultant and removed and recompacted if necessary.
- e. Following the required stripping and over excavation, in the areas of proposed shallow foundations, the exposed ground surface at the bottom of the over excavation shall be inspected by a geotechnical engineer to evaluate if loose or soft zones are present that will require additional over excavation.
- f. Screening of oversize material shall be anticipated if native soils are planned for use as trench backfill or engineered fill.
- g. Imported soil or native excavated soils, free of organic materials or deleterious substances, may be placed as compacted engineered fill. The material will be free of oversized fragments greater than three inches in dimension. Engineered fill shall be placed in uniform layers not exceeding eight inches in loose thickness, moisture conditioned to within two to four percent above optimum moisture content, and compacted to at least 90 percent relative compaction. Engineered fill placed on fill slopes must be placed in uniform layers not exceeding eight inches in loose thickness,

moisture conditioned to near optimum moisture content, and compacted to at least 90 percent of relative compaction.

- h. An engineer or geotechnical consultant must be called to the site to verify the import material properties through laboratory testing.
- i. If possible, backfill operations shall be scheduled during a dry, warm period of the year. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a “pumping” condition. This condition is caused by excess moisture in combination with moving construction equipment, resulting in saturation and zero air voids in the soils. If this condition occurs, the adverse soils will need to be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which should be subject to review and approval by the engineer or geotechnical consultant prior to implementation.
- j. Import fill materials will be free from organic materials or deleterious substances. The Project specifications must require the contractor to contact engineer or geotechnical consultant to review the proposed import fill materials for conformance with these recommendations at least one week prior to importing to the site, whether from onsite or offsite borrow areas. Imported fill soils must be non-hazardous and derived from a single, consistent soil type source conforming to the following criteria:
  - Plasticity Index: < 12
  - Expansion Index: < 20 (Very Low Expansion Potential)
  - Maximum Particle Size: three inches
  - Percent Passing #4 Sieve: 65–100
  - Percent Passing #200 Sieve: 20– 45
  - Low Corrosion Potential: Soluble Sulfates < 1,500 ppm
  - Soluble Chlorides < 150 ppm
  - Minimum Resistivity > 3,000 ohm-cm

**GEO-2 Paleontological Resources:** If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If

the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.

**HAZ-1 Hazardous Materials:** The Project shall submit a Hazardous Materials Business Plan. The Hazardous Materials Business Plan will be in accordance with Tulare County and the California Department of Toxic Substances Control policy and guidelines. The Materials Business Plan will contain any Acutely Hazardous Materials (AHM) that handles a minimum of 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of compressed gas or any AHM that must be included in a business plan that requires an emergency response to a possible release of hazardous materials. The Project shall comply with proper handling, labeling, accumulation, and disposal of waste.

**HYD-1 Stormwater Pollution Prevention Plan:** Prior to construction, the applicant shall submit an approved copy of (1) the approved LUPs SWPPP and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the Type 1 LUPs SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended Type 1 BMPs for the construction phase may include the following:

- Soil stabilization BMPs
- Sediment control BMPs
- Temporary gravel construction entrance/exit
- Run-on control

**HYD-2 Grading Plan:** The applicant shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include Best Management Practices to limit onsite and offsite erosion.

**HYD-3 Stormwater Retention:** The applicant shall consult with the Tulare County Public Works Department regarding the designated locations of detention basins in the Project area and the use of said basins. In the event there is not currently a basin having capacity to serve the storage tank site, the Project shall cooperate with the County to achieve adequate stormwater retention.

## **SECTION 1 - INTRODUCTION**

### **1.1 - Overview**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 250,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD) . The new production well will provide a compliant water supply in an amount sufficient to meet the needs of East Orosi, Cutler-Orosi Joint Unified School District and, if desired, to provide a supplemental water source for Orosi and Cutler. An annexation of the EOCSD service area into the OPUD is also required.

In addition, the proposed Project would include replacement of the existing meter boxes, installation of metered service connections and new fire hydrants, and abandonment of the existing well located north of Avenue 416 and east of Road 128 (SR 63).

The proposed Project will provide clean, reliable, potable water to the residents of East Orosi. The proposed Project will allow the EOCSD to meet the current water demand without increasing water demand or inducing growth in the community.

### **1.2 - California Environmental Quality Act**

This IS/MND examines the potential environmental effects of the Project. The Project site is located in both the OPUD and the EOCSD service area.

The County of Tulare is the Lead Agency for this Project pursuant to the CEQA Guidelines (Public Resources Code Section 15000 et seq.). Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an IS to determine whether a discretionary project will have a significant effect on the environment. A Mitigated Negative Declaration (MND) is appropriate when an IS has been prepared and a determination can be made that no significant environmental effects will occur because revisions to the project have been made or mitigation measures will be implemented that reduce all potentially significant impacts to less than significant levels. The content of an MND is similar to a Negative Declaration, but also includes mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) (see *Section 4 - Mitigation Monitoring and Reporting Program*).

Based on the IS, the Lead Agency has determined that CEQA compliance in the form of an MND can be achieved to satisfy the environmental review process for the proposed .

### **1.3 - Impact Terminology**

The following terminology is used to describe the level of significance of impacts.

- A finding of *no impact* is appropriate if the analysis concludes that the project would not affect the particular topic area in any way.
- An impact is considered *less than significant* if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments that have been agreed to by the applicant.
- An impact is considered *potentially significant* if the analysis concludes that it could have a substantial adverse effect on the environment.

#### **1.4 - Document Organization and Contents**

The content and format of this IS/MND is designed to meet the requirements of CEQA. The report contains the following sections:

- *Section 1 – Introduction:* This section provides an overview of CEQA requirements, intended uses of the IS/MND, document organization, and a list of regulations that have been incorporated by reference.
- *Section 2 – Project Description:* This section describes the Project and provides data on the site’s location.
- *Section 3 – Environmental Checklist:* This section contains the evaluation of 21 different environmental resource factors contained in Appendix G of the CEQA Guidelines. Each environmental resource factor is analyzed to determine whether the proposed Project would have an impact. One of four findings is made which include no impact, less than significant impact, less than significant with mitigation, or significant and unavoidable. If the evaluation results in a finding of significant and unavoidable for any of the 21 environmental resource factors, then an Environmental Impact Report will be required.
- *Section 4 – Mitigation Monitoring and Reporting Program:* This section contains a Mitigation Monitoring and Reporting Program that summarizes the impacts, mitigation measures, and level of significance after mitigation.
- *Section 5 – List of Preparers:* This section identifies the individuals who prepared the IS/MND.
- *Section 6 – References:* This section contains a full list of references that were used in the preparation of this IS/MND.

#### **1.5 - Regulation Incorporated by Reference**

The following regulation is incorporated into this IS/MND by reference. Other applicable federal, State, and regional regulations are referenced throughout this document:

- Tulare County General Plan 2030 (Updated Recirculated Draft EIR)
- Tulare County Zoning Ordinance
- Cutler-Orosi Community 2021 Plan Update

- East Orosi Community Plan (2017)
- Tulare County Climate Action Plan (2018 Update)

## **SECTION 2 - PROJECT DESCRIPTION**

### ***2.1 - Introduction/Background***

The community of East Orosi had an estimated population of approximately 572.<sup>1</sup> The community receives its water supply from two different wells. Well 1 provides water that meets State water quality requirements. Well 2 produces water with high levels of the primary nitrate contaminate, which exceeds the maximum contaminate level of 10 micrograms per liter ( $\mu\text{g/L}$ ) as established by the State.

Well 1 is located east of Ione Road. When the quality-compliant well cannot meet the community peak water demand, the second well is pressed into service. Well 2 is located north of Avenue 416 and east of Road 136. When Well 2 is being utilized, the community of East Orosi must use bottled water for drinking and cooking. Both wells use an existing 40-year-old four-inch and six-inch asbestos-containing concrete-covered water distribution system with customer service meters.

Chemical sample tests were conducted on the groundwater used by the community of East Orosi and were found to have nitrate levels exceeding the maximum contaminate level (MCL) by law. A notice sent by Tulare Environmental Health indicates that the East Orosi Community Service District (EOCSD) has been in violation of nitrate MCLs allowed by law.

The EOCSD infrastructure is proposed to connect to the existing Orosi Public Utility District (OPUD) water system.

### ***2.2 - Project Location***

The proposed Project contains two separate sites (and its pipelines will be underground along various Tulare County roadway rights-of-way) and is located within the unincorporated communities of Orosi and East Orosi, Tulare County (Figures 2-1 and 2-2). The first Project site location will contain a new water supply well (north of Avenue 408, approximately 700 feet west of Road 128 [SR 63]), as part of this component of the Project and an underground pipeline will be installed along Avenue 408 from the new well and will then run north along Road 128, ending south of Avenue 412. The second Project site location will contain a new water storage tank (southeast of the intersection of Florida Avenue and Ione Road) and an underground pipeline that will begin along Ione Road and run south to Avenue 416, ending east of Road 130.

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<sup>1</sup> East Orosi Community Plan. Page 26. Accessed January 2022 at: <https://tularecounty.ca.gov/api/render/file/?fileID=8C54A5ED-5056-A959-DBDDE01CB7583074>

### **2.3 - Project Environment**

The Project is located in proximity to both rural and urban areas that are mostly comprised of residential and agricultural uses. The areas to the north, south, east, and west of the Project sites are comprised of agricultural fields but are in close proximity to urban boundaries of the unincorporated communities of Orosi, Cutler, and East Orosi (Figure 2-2). The district boundaries of OPUD and EOCSD are shown in Figure 2-3. The majority of the proposed Project will be installed underground except for the new well site and new water storage tank.



 **Figure 2-1**  
**Regional**

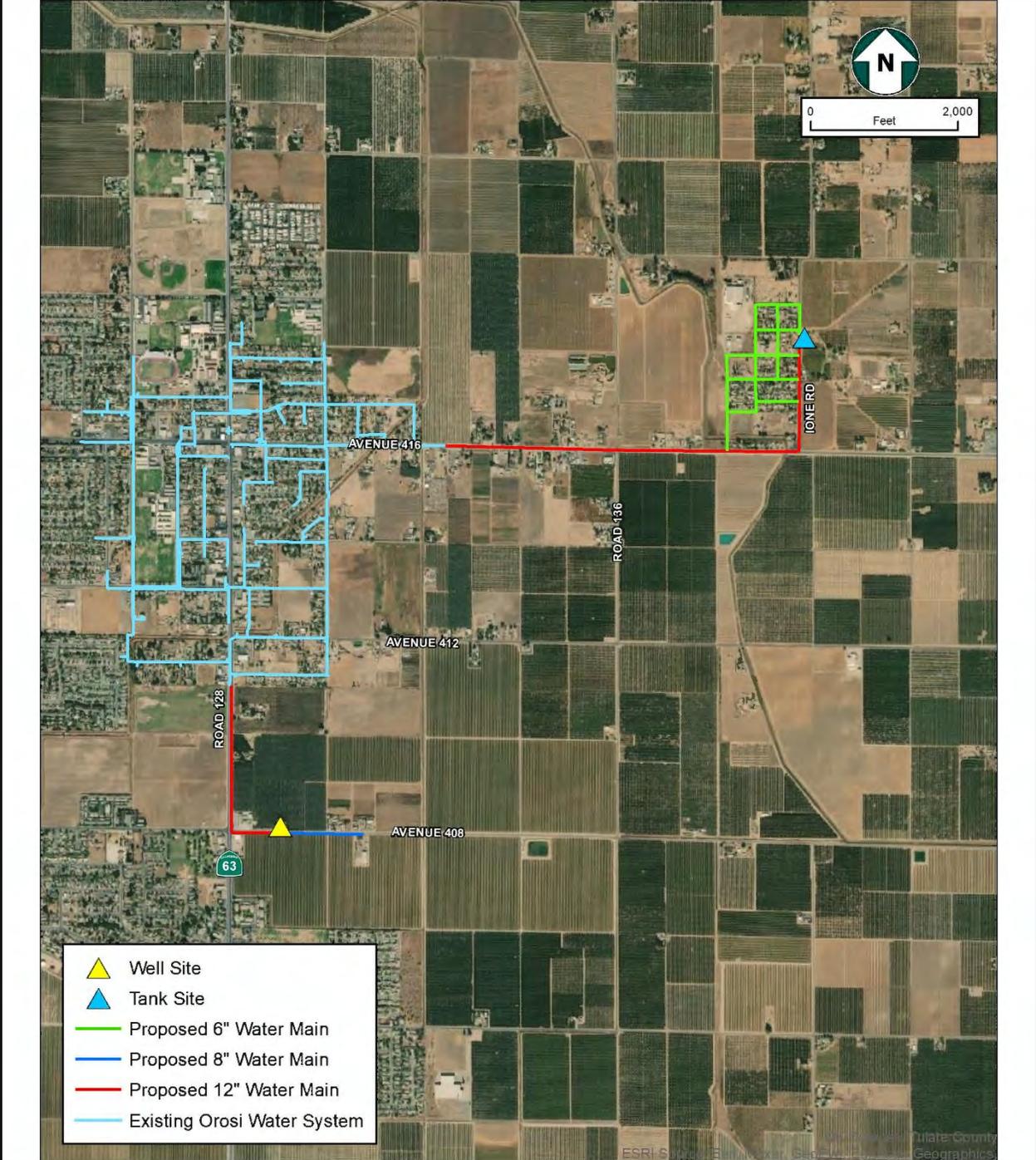


Figure 2-2  
Project Area

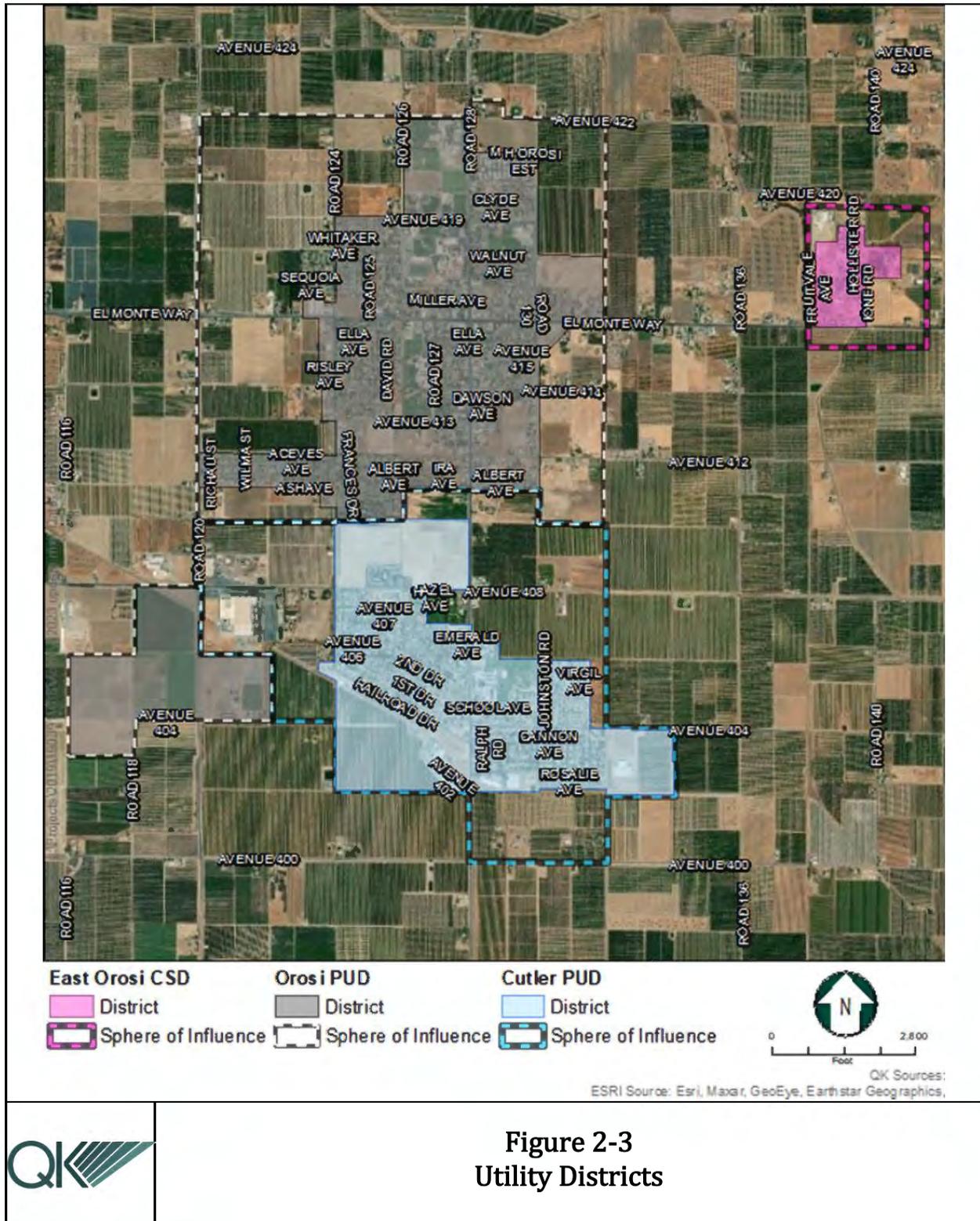


Figure 2-3  
Utility Districts

## **2.4 - Proposed Project**

A Preliminary Engineering Report (PER) was prepared to identify and evaluate the feasibility and costs of solutions to East Orosi's water supply needs, and to enable implementation of the best solution (QK, 2017). The PER expands upon alternate solutions and ends with a recommendation. The recommended solution is then further discussed in the prepared Supplemental PER and reflects the proposed Project (QK, 2023). Both the PER and Supplemental PER are attached as Appendix A.

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). The new production well will provide a compliant water supply in an amount sufficient to meet the needs of East Orosi, Cutler-Orosi Joint Unified School District and, if desired, to provide a supplemental water source for Orosi and Cutler. An annexation of the EOCSD service area into the OPUD is also required.

In addition, the proposed Project would include replacement of the existing meter boxes, installation of metered service connections and new fire hydrants, and abandonment of the existing well located north of Avenue 416 and east of Road 128.

The proposed Project will provide clean, reliable, potable water to the residents of East Orosi. The proposed Project will allow the EOCSD to meet the current water demand without increasing water demand or inducing growth in the community.

## **2.5 - Project Components**

### ***WATER WELL***

As previously stated, the EOCSD currently has two wells. The well, located east of Lone Road and south of Avenue 418 (well 1) is the primary source of water and produces drinkable water for the community of East Orosi. When the primary well is unable to meet peak community water demand, a second well, located north of Avenue 416 and east of Road 136 (well 2), is pressed into service. This second well produces water high in nitrates resulting in the community residents having to use bottled water for drinking and cooking purposes. To resolve the issue of high nitrates generated by the second well, a new well is proposed to be constructed north of Avenue 408, east of Road 128, and west of Bowhay Ditch.

Well components will include an electric booster pump, chlorination facilities, a well discharge meter, a variable frequency drive (VFD), well site paving and fencing, and an 8-inch t-connector for potential expansion.

The proposed new well will be located on Avenue 408, east of Road 128. The new well will draw water from depths ranging from 255 to 390 feet and will range from 430 to 570 feet in depth. The new well could produce a maximum rate of 1,200 to 1,400 gallons per minute (QK, 2020a). The new well will utilize a 10-inch pipeline and would connect to the existing OPUD water distribution system. There are no major agricultural wells adjacent to the proposed wellsite.

The EOCSD well 1 located at the southeast corner of Ione Road and Florida Avenue and well 2 located near the intersection of Avenue 416 and Road 136 will both be plugged and abandoned per State and local regulations once the new water system is in place.

### ***300,000-GALLON WATER STORAGE TANK***

The new 300,000-gallon water storage tank will be installed southeast of Florida Avenue and Ione Road in East Orosi and would replace the existing EOCSD well sites. The new water storage tank will include a booster pump and is anticipated to provide 24 hours of maximum day demand plus residential fire flow.

### ***EAST OROSI DISTRIBUTION SYSTEM REPLACEMENT***

The proposed project would replace the nearly 40-year-old existing water distribution system (that consists of four-inch and six-inch asbestos-containing concrete lines), which would be replaced by approximately 9,450 feet of 8-inch line. The existing EOCSD distribution system will be abandoned in place with the existing piping being cut and capped once the new system is operational. The proposed new, replacement pipeline distribution system will be installed in existing road rights-of-way at a depth of four feet.

There is one canal (Alta East Branch Canal) that must be crossed along the route. The pipeline (along Avenue 416) will be installed underneath this canal using the jack-and-bore method. The canal will not be impacted by installation of the pipeline.

### ***DISTRIBUTION SYSTEM CONNECTION***

The proposed wellsite is located on Avenue 408, east of Road 128 will connect to the OPUD water distribution system via 10-inch polyvinyl chloride (PVC) pipeline with the connection occurring at Albert Avenue and SR 63. The 10-inch line is anticipated to span approximately 3,050 feet and would be located within existing road right-of-way along Avenue 408 and SR 63 up to the connection point near the intersection of Albert Avenue and Highway 63.

The proposed water storage facility and East Orosi water distribution system would connect to OPUD via an 8-inch PVC pipeline. The 8-inch piping would span approximately 6,700 feet connecting the EOCSD distribution system to OPUD. The OPUD connection point is located approximately 300 feet east of Sand Creek along Avenue 416.

### ***ANNEXATION/CONSOLIDATION***

The proposed project will include the annexation and consolidation of the EOCSD into OPUD. To achieve this, a change in the Sphere of Influence (SOI) of the OPUD to include the EOCSD SOI and annexation of the EOCSD service area is required and will need to be approved by the Tulare County Local Agency Formation Commission (LAFCO).

The EOCSD boundaries encompass an approximately 53-acre area while its LAFCO established SOI covers an approximately 145-acre area. The EOCSD's boundaries are generally bordered by Avenue 416 to the south, Ione Avenue to the east, Fruitvale Avenue to the west, and the District's boundary is south of Avenue 420. As noted above, the project will include the consolidation of EOCSD into OPUD and will require the annexation of the approximately 145-acre EOCSD boundary into the consolidated district. Consolidation is recommended by Tulare County LAFCO in the prepared Municipal Services Review (MSR) for EOCSD (Tulare County LAFCO, 2011).

### ***2.6 - Associated Facilities***

The essential facilities associated with proposed Project well, distribution system, and storage include:

- Service connections and service water meters.
  - It is recommended that all residential service connections be one-inch diameter and that meters be remote-read.
  - Service connection size, design, and metering will be specified at the time of preparation of the proposed Project plans and specifications but is assumed for this report to be a 1.5 metered connection.
- Proposed new fire hydrant spacing will be approved by the Tulare County Fire Department.
- Both the well and storage tank equipment will be powered by electrical energy supplied by the public energy supplier and does not require standby power to be available in the event of interrupted power. The OPUD system already contains generators that will provide power to wells during power outages.
  - The proposed interconnection of the OPUD and the Project system will require bored connection under the County road and will be valved to enable backflow prevention should either system have non-compliant or major water quality pressure loss problems.

## **2.7 - Alternatives**

Analysis of possible alternatives were presented in the PER, prepared for the Project (QK , 2017), which is included in Appendix A of this IS/MND. The PER outlines the constraints impacting the various options and the rationale for the preferred choice, which is the Project described above.

## **2.8 - Comprehensive Response to Climate Change**

As part of the Drinking Water State Revolving Fund, identification of Project vulnerabilities to climate change and the impact the Project may have on climate change is requested. As shown, the Project is vulnerable to climate change impacts, however adaptations and mitigation are associated with the Project that will combat climate change factors facing the East Orosi community.

### **Vulnerability:**

- **Water Supply Depletion:** The proposed Project relies on groundwater. As such, the proposed well could be adversely impacted if the groundwater supply in the area decreases below the depth of the well.
- **Drought:** The proposed Project relies on groundwater. As such, the proposed well could be adversely impacted if a drought lowers the groundwater elevation in the area below the depth of the well.
- **Water Supply Quality:** Groundwater quality in the area is known to be high in nitrates and pesticides. If the groundwater levels in the area decrease, there is the possibility that the proposed well may be susceptible to degraded groundwater quality.

### **Adaptation:**

- **Additional Storage:** The proposed Project provides a water storage tank for the EOCS D water distribution system that did not previously have it. This will allow the consolidated EOCS D and OPUD to effectively manage groundwater resources, reduce vulnerability to and from impacts of long-term drought conditions, and provide fire suppression storage capacity for the East Orosi service area.
- **Fire Resistant Water Connections and Hydrants:** The proposed Project will provide new water connections and fire hydrants capable of supplying adequate flows to meet the Fire Code where the existing system does not provide adequate fire flow.

**Mitigation:**

- **Water Conservation:** The proposed Project will provide water meters for all service connections. Once operational, customers will be charged based on water usage instead of a flat rate and will lead to water conservation in the system.

## **SECTION 3 - INITIAL STUDY**

### **3.1 - Environmental Checklist**

**1. Project Title:**

East Orosi Water Project

**2. Lead Agency Name and Address:**

County of Tulare Resource Management Agency  
5961 S Mooney Blvd  
Visalia, California 93277  
Hector Guerra – Chief Environmental Planner

**3. Contact Person and Phone Number:**

Hector Guerra- Chief Environmental Planner  
559- 624-7121  
hguerra@tularecounty.ca.gov

**4. Project Location:**

The Project area is located at various areas in the unincorporated communities of East Orosi and Orosi, Tulare County, California. The Project includes two specific sites to accommodate the new well and new storage tank. The first site (southeast of Orosi) is located east of Road 128, north of Avenue 408, and will accommodate the new well. The second site (in East Orosi) is located southeast of Ione Road and Florida Avenue and will accommodate the new water storage facility. New pipeline connecting OPUD and EOCS D are anticipated to be located within public road rights-of-way generally along Avenue 416, Avenue 408, and SR 63.

**5. Project Sponsor's Name and Address:**

Same as Lead Agency

**6. Tulare County General Plan Designation:**

Orosi UDB is designated with the following land use designations in areas where the Project will be located:

- Residential Reserve: Land designated for future residential use which should remain in agricultural use until it is determined that criteria can be met including: (1) the property is not subject to an agricultural preserve contract; (2) full urban services and infrastructure sufficient to serve urban development either are available or can be made available; and (3) the property is contiguous on at least one side to existing urban development.

- Low Density Residential: Land designated for residential use which lacks off-site sewer or water, or both. Agricultural uses shall be allowed on lands with this designation consistent with the Tulare County Zoning Ordinance. Low density residential allows six units or less per acre.
- Medium Density Residential: Land designated for single- and two-family residential development, with a minimum of 3,000 square feet of lot area per dwelling unit. Medium density residential allows 4-14 units per acre.
- Quasi-Public Uses: Land designated for quasi-public and public uses, including churches, wastewater treatment plants, schools, and public offices.
- Parks/Open Space: Land Reserved for parks, flood plains and land suitable for open space.
- General Commercial: Land designated for a full range of retail commercial uses and offices.
- Service Commercial: Land designated for commercial uses which provide wholesale or heavy commercial services. It also provides for light industrial uses which manufacture, assemble or package products from previously manufactured materials. Said uses may include automobile service and repair, lumber yards, heavy equipment sales and service, cabinet shops, and wholesale establishments.
- Industrial: Land designated for industrial uses or agriculturally related industries. Heavy industrial uses shall be processed under a conditional use permit.

East Orosi is designated as a UDB with the following land designation:

Mixed Use: To promote Economic Development within the East Orosi Urban Development Boundary, a Mixed Use Overlay zoning district is being established to allow for flexibility in the allowed uses within East Orosi. All uses outlined in the M-1, C-3, C-2, C-1, R-1, R-2, and R-3 uses are allowed, and includes uses and activities found by the Planning Director to be similar and compatible with those specific zoning districts and conditional uses allowed in these zoning districts.

**7. Zoning:**

The following zone districts are in areas where the Project will be located.

- AE-20 (Exclusive Agricultural Zone – 20 Acre Minimum)
- R-A (Rural Residential)
- O (Recreation)
- R-1 (Single-Family Residential)
- R-3 (Multiple Family)
- C-2 (General Commercial)

- C-2 SR (General Commercial, Site Review Combining Zone)
- C-2 MU (General Commercial, Mixed Use Overlay Combining Zone)
- C-3 (Service Commercial)
- C-3 SR (Service Commercial, Site Review Combining Zone)

## 8. Description of Project:

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Oroshi and then connecting a new pipeline to the new storage tank in East Oroshi; and 5) consolidate the East Oroshi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Oroshi Public Utility District (OPUD). The new production well will provide a compliant water supply in an amount sufficient to meet the needs of East Oroshi, Cutler-Oroshi Joint Unified School District and, if desired, to provide a supplemental water source for Oroshi and Cutler. An annexation of the EOCSD service area into the OPUD is also required.

In addition, the proposed Project would include replacement of the existing meter boxes, installation of metered service connections and new fire hydrants, and abandonment of the existing EOCSD wells 1 and 2.

The proposed Project will provide clean, reliable, potable water to the residents of East Oroshi. The proposed Project will allow the EOCSD to meet the current water demand without increasing water demand or inducing growth in the community.

## 9. Surrounding Land Uses and Setting:

### Proposed wellsite and pipeline connecting to OPUD

The proposed wellsite located north of Avenue 408 is bordered by land utilized for agricultural to the north, south, and west. Directly east is the Family Education Center. The proposed pipeline connecting the wellsite to OPUD is located along public right-of-way which is adjacent to agricultural land and urban uses including commercial and residential associated with the UDB of Cutler and Oroshi.

### Proposed storage tank, and pipeline connecting EOCSD to OPUD

The proposed storage tank is located within the East Oroshi UDB at the southeast corner of Ione Road and Florida Avenue. The storage tank site is situated near residential uses to the west and surrounded by agricultural uses to the north, south, and east. The pipeline connecting the EOCSD distribution system and proposed storage tank to the OPUD distribution system is located along public right-of-way that is adjacent to residential and agricultural uses.

## 10. Other Public Agencies Whose Approval May be Required:

- Alta Irrigation District
- California Department of Fish and Wildlife
- Central Valley Regional Water Quality Control Board
- San Joaquin Valley Unified Air Pollution Control District
- California Department of Transportation
- Tulare County Local Agency Formation Commission

### 3.2 - Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                  | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources        | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Energy                             |
| <input type="checkbox"/> Geology / Soils             | <input type="checkbox"/> Greenhouse Gas Emissions           | <input type="checkbox"/> Hazards & Hazardous Materials      |
| <input type="checkbox"/> Hydrology / Water Quality   | <input type="checkbox"/> Land Use / Planning                | <input type="checkbox"/> Mineral Resources                  |
| <input type="checkbox"/> Noise                       | <input type="checkbox"/> Population / Housing               | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Recreation                  | <input type="checkbox"/> Transportation                     | <input type="checkbox"/> Tribal Cultural Resources          |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire                           | <input type="checkbox"/> Mandatory Findings of Significance |

### 3.3 - Determination

On the basis of this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed

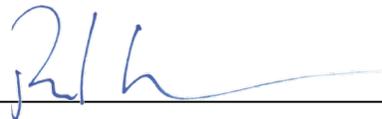
adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature:  \_\_\_\_\_

Hector Guerra  
Printed Name

Date: 9/27/23

Chief Environmental Planner  
Title

Signature:  \_\_\_\_\_

Reed Schenke, P.E.  
Printed Name

Date: 9/27/23

Environmental Assessment Officer  
Title

### **3.4 - Evaluation of Environmental Impacts**

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a Lead Agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on Project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a Project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the Lead Agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a. Earlier Analysis Used. Identify and state where they are available for review.
  - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c. Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
  - a. The significance criteria or threshold, if any, used to evaluate each question; and
  - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.1 - AESTHETICS**

Except as provided in Public Resources Code Section 21099, would the Project:

- |  |                          |                                     |                                     |                          |
|--|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| a. Have a substantial adverse effect on a scenic vista?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality? | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

**Would the Project:**

**Impact #3.4.1a – Have a substantial adverse effect on a scenic vista?**

The proposed Project is located in a generally rural area that is predominantly comprised of residential, rural residential, agricultural services, and agriculturally productive land uses and is not located in or near any designated scenic vistas. The areas to the north, south, east, and west of the proposed Project are predominantly comprised of agricultural fields. No known aesthetic resources exist on or near the Project area. The majority of the proposed Project will consist of pipelines which will be installed underground except for the proposed wellsite and water storage tank. Construction-related activities of the new wellsite and water storage tank will have a short-term, temporary, and intermittent impact and may obstruct public views of agricultural fields and/or neighboring buildings. However, when completed and operational, the Project will not block or preclude views to any area containing important or what would be considered visually appealing landforms. The proposed Project will not have an adverse effect on known scenic vistas. Therefore, the proposed Project will have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.1b – Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?**

See Impact #3.4.1a, above.

The Project area does not contain any scenic highways (California Department of Transportation, 2018). Pursuant to the California Streets and Highways Code, Sections 260 through 263, certain elements make a highway scenic, which includes the amount of natural landscape that can be seen by drivers, the scenic quality of the landscape, and the extent of development. If a highway meets these criteria, then it becomes eligible to become an officially designated scenic highway. Tulare County supports and encourages citizen initiatives working for formal designation of eligible segments of State Route 198 and State Route 190 as State scenic highways (General Plan Policy SL-2.1(2) (Tulare County Resource Management Agency, 2012). State Route 198 is approximately 14 miles to the south of the closest portion of the proposed Project area, and State Route 190 is approximately 33 miles to the south of the closest portion of the proposed Project area. The Tulare County General Plan designated Avenue 416 as a County scenic road. The communities of East Orosi and Orosi includes Avenue 416 The proposed Project encompasses Avenue 416 spanning from east of Road 128 to the intersection of Ione Road. The proposed Project does not propose development that would affect the designated scenic road as the proposed pipelines are to be constructed underground and the proposed wellsite and water storage tank are located away from Avenue 416. The area around the proposed Project is improved with agricultural, rural residential, and residential uses. There are no known historic buildings, trees, rock outcroppings, historic buildings, or scenic highways that have been identified near the

proposed Project area. Therefore, the proposed Project would have a less than significant impact on scenic resources within a scenic highway.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.1c – Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?**

See discussion of Impact #3.4.1a and #3.4.1b.

The Project site for the new water storage tank will be located southeast of Ione Road and Florida Avenue and will be approximately 24 feet in height. The storage tank will be located on the site where an existing well and EOCSD office is, next to single-family homes and is zoned as Rural Residential (R-A). The Tulare County Zoning Ordinance (Zoning Ordinance) Chapter 3, Section 4, page 2 states that building heights will not exceed 35 feet. Therefore, the proposed Project will be below the height requirements defined in the Zoning Ordinance. The new water storage tank will be comprised of infrastructure related to water purveyance. The new storage tank will impact the visual character by obstructing public views for the properties on the west side of Ione Road next to the intersection of Florida Avenue and Ione Road, however as noted, does not exceed the maximum allowable height established in the Zoning Ordinance.

The proposed new well will be located on Avenue 408, east of SR 63, and Project pipelines will all be placed underground within the public rights-of-way in generally rural residential areas consisting of single-family homes, commercial properties, and agricultural lands. The surrounding area is primarily agriculture with similar views around the vicinity. The proposed wellsite's appearance will not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

All construction-related work will be temporary and short-term and would temporarily obstruct views within the community with each section/component of work. The proposed water storage tank and well will not conflict with local zoning or other regulations governing scenic quality. Therefore, the proposed Project will have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.1d – Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?**

**Construction**

Construction-related activities on the proposed Project would typically be conducted during daylight hours, that is, from 7:00 a.m. to 6:00 p.m. Increased truck traffic and the transport of construction materials to the Project site would temporarily increase glare conditions during construction-related activities. In the event that work is performed between dusk and 6:00 a.m., construction crews will use minimal illumination to perform the work safely. All construction lighting would be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.

**Operation**

Once operational, the new storage tank may require the use of permanent security lighting. The design of the new well, along with the discharge meter, would comply with applicable provisions of all pertinent lighting standards.

There is potential for light spillage onto adjacent properties. Compliance with Mitigation Measure AES-1 will avoid and minimize impacts to light spillage onto adjacent properties and will reduce the impact to below significant. Therefore, the proposed Project is anticipated to have a less than significant impact with mitigation on light or glare.

**MITIGATION MEASURE(S)**

**AES-1:** Any Project lights will be designed to ensure lighting will be sufficiently directed downward and shielded to focus illumination on the desired work areas and prevent light spillage onto adjacent properties.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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### 3.4.2 - AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Oroshi and then connecting a new pipeline to the new storage tank in East Oroshi; and 5) consolidate the East Oroshi Community Service District (EOCSD) drinking

water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur..

**Would the Project:**

**Impact #3.4.2a – Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

The proposed Project would result in a significant impact if it would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use, conflict with a Williamson Act contract, or involve changes in the existing environment, that due to their location or nature could result in conversion of Farmland to non-agricultural uses (County of Tulare, 2010).

**Proposed Wellsite**

The proposed wellsite located north of Avenue 408 and east of SR 63 is designated as Farmland of Statewide Importance per the Farmland Mapping and Monitoring Program (FMMP) (California Department of Conservation, 2018). As noted, the pipeline connecting the wellsite to OPUD will be located within existing public right-of-way, therefore the pipeline component of the wellsite will not impact Farmland.

The proposed wellsite is located on property currently in use for agricultural activities and is currently zoned AE-20 (Exclusive Agriculture, 20 acre minimum size). The development of the wellsite on the subject area is anticipated to dedicate a small portion of land to accommodate the wellsite and associated improvements and will not impact the viability of the existing agricultural operation. The proposed wellsite will be confined to its development site and would not result in additional development that would take the entire parcel out of agricultural production. Per the Culter-Orosi Community Plan, the subject parcel is planned for General Commercial, but is currently zoned AE-20. The agricultural zoning is intended to be a holding zone until such time as it is determined that urbanization is appropriate. The proposed wellsite will result in a small portion of the site being dedicated to a wellsite intended to provide water to OPUD and EOCS D and will not result a significant impact to Farmland resources.

**Proposed Water Storage Tank**

The proposed water storage tank located at the southeast corner of Ione Road and Florida Avenue in East Orosi designated as Farmland of Statewide Importance (California Department of Conservation, 2018). The pipeline connecting the storage tank and EOCS D water distribution system to the OPUD water distribution system is located within existing developed right-of-way and will not impact Farmland.

The proposed new tank site and new well site are located in areas designated as Farmland of Statewide Importance by the Department of Conservation's (DOC) FMMP. The proposed new water storage tank is in an area zoned as R-A (Rural Residential) and is currently improved with a wellsite that contributes water to the EOCSD and an EOCSD office structure. The water storage tank site is not a part of an active agricultural operation. Additionally, the site is located within the East Orosi UDB. Therefore, although the development of the water storage tank will be developed on land designated as Farmland of Statewide Importance, the development is not likely to result in a significant impact on Farmland as the facility will be located on land not in agricultural use.

The County General Plan Draft EIR has already conducted an analysis and deemed conversion of Farmland as significant and unavoidable. Further, Tulare County General Plan Policy AG-1.10 states that the County will typically oppose extension of urban services into areas designated for agriculture use unless necessary to resolve a public health situation. As stated, the purpose of the Project is to meet water demand and comply with water quality standards for water supplied to the residents of East Orosi. The consolidation of EOCSD into OPUD and the proposed improvements will allow water to be supplied to East Orosi residents while complying with fire department requirements (provision of a water storage tank), water quality standards, and water supply demands. Therefore, although the Project will convert a small portion of Farmland to a non-agricultural use, the Project is consistent with the Tulare County General Plan and will have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.2b – Conflict with existing zoning for agricultural use or a Williamson Act contract?**

See Impact #3.4.2a.

**Proposed Wellsite**

The wellsite is proposed to be located on land currently under Williamson Act contract. The subject parcel is zoned AE-20 (Exclusive Agriculture, 20 acre minimum). The construction, destruction, and inactivation of water wells is permitted and regulated by the County of Tulare Environmental Health Division per Part IV, Chapter 13 of the Tulare County Ordinance Code. Therefore, the permitting and installation of wells are not subject to the underlying agricultural zone district and is only required to comply with the provisions of the Tulare County Ordinance Code. The proposed wellsite does not conflict with the agricultural zone district and although the land associated with the Project will be utilized for non-agricultural use, the portion of land is small in comparison to the rest of the parcel

and will not impact the viability of the existing agricultural operation. Therefore, although the parcel is subject to a Williamson Act contract, the Project does not conflict with the existing zoning or Williamson Act contract.

### **Proposed Water Storage Tank**

The proposed water storage tank is located in East Orosi at the southeast corner of Lone Road and Florida Avenue. The water storage tank is not located on a parcel that is subject to a Williamson Act Contract. The subject parcel is zoned R-A (Rural Residential).

Additionally, the Tulare County General Plan, Policy AG-1.4 states that the County shall support non-renewal or cancellation processes that meet State law for lands within UDBs and HDBs, therefore, although portions of the Project site are located within Williamson Act contracted parcels, non-renewal and cancellation would be allowed to occur and would not conflict with the General Plan.

### **MITIGATION MEASURE(S)**

No mitigation is required.

### **LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.2c – Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?**

The California Public Resources Code Section 12220(g) defines “Forest Land” as “land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.” There are no forest lands identified on the proposed Project site or within its vicinity; therefore, there would be no conflict with or impacts to zoning for forest land or timberland. The proposed Project would not result in the loss or conversion of forest land to a non-forest use.

### **MITIGATION MEASURE(S)**

No mitigation is required.

### **LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.2d – Result in the loss of forest land or conversion of forest land to non-forest use?**

See discussion of Impact #3.4.2c.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.2e – Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?**

See discussion of Impacts #3.4.2a and #3.4.2c.

A portion of the proposed Project would convert Farmland to a non-agricultural use through the development of a wellsite on an existing agricultural operation. The proposed wellsite is not expected to convert a large portion of the agricultural utilized land where viability of the agricultural operation would be affected. The intent of the proposed Project is to improve water quality and infrastructure to customers within the EOCSD. The Project does not involve other changes in the existing environment where additional Farmland would be converted. The Project is not located in proximity to forestland and would not convert forestland to a non-forestland use.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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### 3.4.3 - AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

a.	Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or State ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Result in other emissions (such as those leading to odor) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

The following analysis is based on the Air Quality and Greenhouse Gas Assessment prepared for this Project (Trinity Consultants, 2022) attached as Appendix B. The Project is located within the San Joaquin Valley Air Basin (SJVAB) and within the San Joaquin Valley Air Pollution Control District (SJVAPCD or Air District) jurisdiction.

The Air District has established thresholds of significance for criteria pollutant emissions, which are based on the Air District's New Source Review (NSR) offset requirements for stationary sources. Using the project type, size, and number of vehicle trips, the District has pre-quantified emissions and determined values below which it is reasonable to conclude

that a project would not exceed applicable thresholds of significance for criteria pollutants. The Air District's SPAL process also identifies projects that are considered a small project and would not exceed the emissions thresholds. Using the guidance provided by the Air District and Guidance for Assessing and Mitigation Air Quality Impacts (GAMAQI), the proposed Project qualifies as a small project and was evaluated with the land use category of "industrial." Table 3.4.3-1 shows the thresholds required to determine if a project has the possibility of exceeding criteria pollutant emissions thresholds. According to the SPAL, the emissions estimates do not exceed the Air District's established emissions thresholds and significance thresholds (Trinity Consultants, 2022).

**Table 3.4.3-1  
Industrial Projects SPAL Reference Sizes**

<b>Land Use Category – Office</b>	<b>Project Size (square feet) *</b>	<b>ADT One-way Fleet Types (except HHDT)</b>	<b>ADT One-Way for HHDT Trips Only</b>
General Light Industry	280,000	550	70
Heavy Industry	900,000	550	70
Industrial Park	295,000	550	70
Manufacturing	472,000	550	70
Proposed Project**	125,600	1	2
SPAL Exceeded?	No	No	No

#### **Would the Project:**

#### **Impact #3.4.3a –Conflict with or obstruct implementation of the applicable air quality plan?**

In summary, the proposed Project will include the construction of a new 300,000-gallon storage tank, replacement of an existing distribution pipeline, and a new well. The new storage tank will be located southeast of Florida Avenue and Ione Road; the new well will be located north of Avenue 408, east of Road 128.

The Tulare County General Plan has a dedicated air quality chapter that highlights the connection of air quality with land use and transportation (Tulare County, 2020). The Air Quality Element (Chapter 9), along with the Planning Framework (Chapter 2), Land Use (Chapter 4), Economic Development (Chapter 5), Environmental Resources Management (Chapter 8), Transportation and Circulation (Chapter 13), and Public Facilities and Services (Chapter 14), contain goals and policies to reduce the impacts of air pollution, air pollution sources, and greenhouse gas emissions.

As the regulatory agency, the SJVAPCD is responsible for developing air quality plans, monitoring air quality, developing air quality regulations and permitting programs for air emission sources. The SJVAPCD has identified quantitative emission thresholds to evaluate the potential air quality impacts of a project. Emissions exceeding the established significant

thresholds would be considered to have a significant impact if not adequately mitigated to below thresholds. Per GAMAQI, the SJVAPCD has established air quality thresholds as presented in Table 3.4.3-2 below.

**Table 3.4.3-2  
SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants**

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities Emissions (tpy)	Non-permitted Equipment and Activities Emissions (tpy)
CO	100	100	100
NO <sub>x</sub>	10	10	10
ROG	10	10	10
SO <sub>x</sub>	27	27	27
PM <sub>10</sub>	15	15	15
PM <sub>2.5</sub>	15	15	15

Source: Appendix B

Further, construction and operation of the Project is expected to comply with applicable rules and regulations required by the SJVAPCD. The following examples of SJVAPCD rules and regulations that may be applicable to the proposed Project are described below:

- Rule 2010 (Permits Required)
- Rule 4002 (National Emission Standards for Hazardous Air Pollutants)
- Regulation VIII (Fugitive PM<sub>10</sub> Prohibitions)
- Rule 9510 Indirect Source Review

Therefore, with the assumption that the proposed Project will comply with the rules and regulations established by the SJVAPCD, the Project is consistent with the currently adopted General Plan for the County of Tulare, and is in accordance with State and federal law. The Project is expected to result in a less than significant impact.

#### **MITIGATION MEASURE(S)**

No mitigation is required.

#### **LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.3b –Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or State ambient air quality standard?**

As discussed, the Air District has adopted thresholds of significance where it can be assumed that if a project does exceed the criteria pollutant emission thresholds, then the project would be considered to have a significant impact if not adequately mitigated to below the thresholds. The Air District separates construction emissions from operational emissions, and further separates permitted operational emissions from non-permitted operational emissions, for determining significance thresholds for air pollutant emissions. Project-related criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0.

The short-term construction-related activities consist of the installation of a new well, replacement and connection of distribution pipelines, and installation of a new 300,000-gallon storage tank. The estimated construction timeline is based on similar projects, in addition to construction area estimates, and vehicle trips and are listed below:

- New Water Well and Storage Tank Construction: 4 Days
- Pipeline Trenching and Installation: 21 Days
- Estimated construction area of 20, 592 feet of pipe in a 6-foot wide trench
- Estimated 32-foot by 32-foot areas for proposed well and storage tank
- Estimated 17 truck one way trips required to haul in materials and 17 truck one way trips to remove material

Construction emission estimates also include haul truck emissions from the transport of asbestos-containing materials to the hazardous waste disposal facility and measures to reduce fugitive PM<sub>10</sub> (dust) emissions. However, it should be noted that the Project only involves the cutting and capping of the existing asbestos-containing distribution system and does not include the full removal of the distribution system. The following measures were included in the emissions analysis consistent with applicable Air District Regulation VIII reduction measures:

- Water exposed area three times per day
- Reduce vehicle speed to less than 15 miles per hour

**Table 3.4.3-3  
Construction Emissions**

Emissions Source	Pollutant					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2022 Construction Emissions (pounds/day)	0.9120	9.2960	6.7360	0.0168	0.5152	0.0049

2022	0.0114	0.1162	0.0842	0.0002	0.0064	0.0049
Construction Emissions (tons/year)						
SJVAPCD	10	10	100	27	15	15
Construction Emissions Thresholds (tons/year)						
Is Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix B

Based on the anticipated activity levels, the emissions anticipated to be produced from Project related construction activities as shown in Table 3.4.3-3 would not exceed SJVAPCD construction emission thresholds. Therefore, construction-related emissions were found to be less than significant.

Long term emissions are caused by operational mobile, area, and stationary sources. The only long-term emissions from this Project would be from maintenance trips which are already in place due to the presence of existing wells associated with EOCSD. There would be a minimal incremental increase in electricity usage from the water storage tank booster pump. Table 3.4.3-4 estimates the operational emissions produced from the Project.

**Table 3.4.3-4  
Total Project Operational Emissions**

Emission Source	Pollutant					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Operational Emissions (pounds/day)	0.0064	0.0072	0.0720	0.0000	0.0168	0.0048
Operational Emissions (tons/year)	0.0001	0.0001	0.0009	0.0000	0.0002	0.0001
SJVAPCD	10	10	100	27	15	15
Operational Emissions Thresholds – non-permitted sources						
Is Threshold Exceeded?	No	No	No	No	No	No

Source: Appendix B

In summary, the construction and operational activities associated with the proposed Project were determined to result in criteria pollutant generation below the annual emission thresholds established by the SJVAPCD. These activities will not result in a significant short-term generation of criteria pollutants or significantly increase long-term operational criteria pollutant emissions. Therefore, the proposed Project will have a less than significant impact on the environment.

#### **MITIGATION MEASURE(S)**

No mitigation is required.

#### **LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

#### **Impact #3.4.3c –Expose sensitive receptors to substantial pollutant concentrations?**

The new well will be located north of Avenue 408, east of Road 128; the new storage tank will be installed southeast of Florida Avenue and Ione Road. SJVAPCD GAMAQI defines sensitive receptors as “people that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s).” Schools, hospitals, nursing homes, playgrounds, residences, rehabilitation centers, and daycare centers are locations where sensitive receptors would likely reside and where there is a reasonable expectation of continuous human exposure to pollutants, according to the average period for ambient air quality standards, i.e., the 24-hour, 8-hour, or 1-hour standards. Additionally, GAMAQI also extends sensitive receptors to include worker receptors and are defined as employees and locations where people work. Table 3.4.3-2 lists potential sensitive receptors within a one-mile radius of the proposed wellsite and Table 3.4.3-6 lists potential sensitive receptors within a one-mile radius of the proposed water storage tank.

**Table 3.4.3-5  
Sensitive Receptors Located < One Mile of New Wellsite**

<b>Receptor</b>	<b>Type of Facility</b>	<b>Distance from Project In Miles</b>	<b>Direction from Project</b>
Ledbetter Park	Park	0.17	W
Cutler Elementary School	School	0.30	S
Wileman Brothers and Elliot	Area of Work	0.71	S
Golden Star Citrus	Area of Work	0.65	S
Crop Production Services	Area of Work	0.73	S
Prima Wawona	Area of Work	0.93	W

Golden Valley Elementary School	School	0.79	N
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**Table 3.4.3-6  
Sensitive Receptors Located < One Mile of New Water Storage Tank**

Receptor	Type of Facility	Distance from Project In Miles	Direction from Project
Fancher Creek Packing	Area of Work	0.18	NW
Pope's Propane Service	Area of Work	0.19	W
Sierra Pacific Materials Orosi	Area of Work	0.65	E

The proposed Project includes the removal of asbestos-containing pipeline and the operation of diesel-powered equipment which would potentially result in emissions of TACs. SJVAPCD's risk management objectives for permitting and CEQA are to minimize health risks from new and modified sources of air pollution, health risks from new and modified sources shall not be significant relative to the background risk levels and other risk levels that are typically accepted throughout the community, and avoid reasonable restrictions of permitting.

The removal of asbestos-containing pipeline could potentially release asbestos into the air. Removal of asbestos containing material is required to comply with federal, State and SJVAPCD regulations such as 40 Code of Federal Regulations (CFR) Part 61, California Code of Regulations (CCR) Title 8, and SJVAPCD Rule 4002. The noted rules and regulations include procedures to minimize asbestos emissions and can include adequate wetting of asbestos-containing material exposed during cutting or disjoining operations, and the careful handling of asbestos-containing material.

To predict the potential health risk to the population attributable to emissions of diesel particulate matter (DPM) from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 0.5-year construction timeline. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risk is the identification of sources with increased TACs. Health risk is determined using the Hotspots Analysis and Reporting Program (HARP2) distributed by the California Air Resources Board (CARB). The most recent version of the Environmental Protection Agency's (EPA) AMS/EPA Regulatory Model (AERMOD) was used to predict the dispersion of emissions from the proposed Project. SJVAPCD has set the level of significant for carcinogenic risk at twenty in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of

one million people. The level of significance for chronic and acute non-cancer risk is a hazard index of 1.0. The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of twenty in one million ( $20 \times 10^{-6}$ ) and 1.0, respectively for the proposed Project. The PMIs, are identified by receptor location and risk, and are provided in Table 3.4.3-7 below.

**Table 3.4.3-7  
Potential Maximum Impacts Predicted by HARP**

	Value
Excess Cancer Risk	1.87E-06
Chronic Hazard Index	3.91E-03

Source: Appendix B

As shown in Table 3.4.3-7, the maximum predicted cancer risk for the Project is 1.87E-06 and the maximum chronic non-cancer hazard index is 3.91E-03. Therefore, the proposed Project is determined to be less than significant as the potential carcinogenic risk is below the significant level of twenty in a million and the hazard index for potential chronic non-cancer risk is below the significance level of 1.0. The Project is not anticipated to result in substantial pollutant concentrations and would not expose sensitive receptors to significant levels of harmful emissions including DPM and asbestos.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.3d –Result in emissions (such as those leading to odors) adversely affecting a substantial number of people?**

As noted earlier, the proposed Project includes the installation of a new well and new water tank, and replacement of existing water distribution system pipelines located near residential neighborhoods. Expected uses are not known to be a source of nuisance odors and are not listed in Table 6 of the Air District’s GAMAQI. The proposed Project is, therefore, not anticipated to have substantial odor impacts and would result in a less than significant odor impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.4 - BIOLOGICAL RESOURCES**

Would the Project:

- |   |                          |                                     |                          |                                     |
|---|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3)

replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

A biological survey was conducted by consultant Quad Knopf, Inc. (QK) to determine whether biological resources of the Project area that might be affected by the proposed Project. The evaluation is based upon existing site conditions, the potential for sensitive biological resources to occur on and in the vicinity of the Project area, and any respective impacts that could potentially occur.

In addition to providing an evaluation of the Project's impacts to biological resources, the Biological Analysis Report (BAR) that supports this IS/MND includes a detailed description of the regulatory environment as it relates to biological resources (QK, 2020b) and is attached as Appendix C.

A literature review of the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDDB), information from the California Native Plant Society, and the United States Fish and Wildlife Service Information for Planning and Consultation tool were examined to identify special-status plant and wildlife species with the potential to occur on the Project site and in the vicinity (the surrounding eight USGS quadrangles (plus the quadrangle where the Project is located) and a 10-mile radius). Information on the potential presence of wetlands and waters was obtained from the National Wetlands Inventory (NWI), National Hydrography Dataset (NHD) and Federal Emergency Management Agency (FEMA). Information regarding the presence of critical habitat in the Project vicinity was obtained from the United States Fish and Wildlife Service's Critical Habitat Mapper database. The results of the database inquiries were subsequently reviewed to evaluate the potential for occurrence of special-status species and other sensitive biological resources known to occur on or near the Project site prior to conducting the biological survey.

On June 24, 2020, three QK biologists conducted a biological survey of the entire Project area and a 250-foot buffer, where feasible. Together, these areas where the survey was conducted are defined as the Biological Survey Area (BSA). A windshield survey for Swainson's hawk nests was conducted for areas within 0.5-mile of the Project. The purpose of the surveys was to determine the locations and extent of potential plant communities and sensitive habitats, determine the potential for occurrence of special-status plant and animal species, and identify other sensitive biological resources within the survey areas. Survey methodologies included walking meandering pedestrian transects through all present habitat within the BSA and driving vehicles down roadways within 0.5-mile of the Project scoping for bird nests with binoculars. Protocol surveys for specific special-status wildlife species were not conducted because it was determined by the consulting biologist that such surveys were not warranted due to the existing conditions of the Project area. Photographs were taken to

document existing landscape of the Project area and adjacent land uses, and detailed notes of observed plant and wildlife species and site conditions were taken while conducting the survey. Locational data was recorded using ESRI Collector for ArcGIS installed on an iPad.

### **General Site Conditions**

The BSA consists of an agricultural land, scattered rural residences, clustered residential development, and urban development associated with the communities of Cutler and Orosi. The Project will mainly consist of the development of a new well, new water storage tank, replacement of the existing EOCSD water distribution system, and connection of the proposed improvements to OPUD. The new well to be installed on the south side of the BSA is in an orchard and the proposed new water storage tank on the north side of the BSA is on in an area located at the east edge of East Orosi, adjacent to an orchard, and is currently improved with an existing wellsite (well 1) and EOCSD office. Wildlife species inhabiting the BSA include those typically found in moderately- to heavily disturbed habitats associated with agricultural and rural residential development. Plants existing on the Project site were a mix of ruderal species and ornamental species occurring at residences. Several California ground squirrel (*Otospermophilus beecheyi*) burrows were present in the buffer at the southern Project location. A juvenile Swainson's hawk was perched next to its nest approximately 0.25-mile east of the Project. The Alta East Branch Canal intersects the Project, passing beneath Avenue 416, and contained some standing water at the time of the survey. There were no wetland or riparian plant species observed in the canal, and cliff swallow nests were constructed on the underside of the Avenue 416 bridge.

There were 48 plant species and 18 wildlife species noted during the survey, either through direct visual observation or by the presence of diagnostic signs.

### **Impact Analysis**

This section describes the results of the database searches and, using conditions present on within the Project area and on-site specific locations (i.e., new well site and new water storage tank site) as determined by the on-site examination where possible, provides an analysis of Project impacts on each of the six biological evaluation criteria. Each of the evaluation criteria are discussed below and mitigation measures are provided as warranted to, when implemented, reduce impacts to below significant levels.

Would the Project:

**Impact #3.4.4a –Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Based on the initial literature review and reconnaissance level survey, the prepared BAR indicated that there is a potential for four special-status species to occur at the Project sites and that the Project sites are located in proximity of a sensitive natural plant community.. An

evaluation of each of the potentially occurring sensitive natural communities and special-status species, which included habitat requirements, likelihood of required habitat to occur within the Project area, and a comparison to the CNDDDB records was conducted. The results of this evaluation concluded that no sensitive natural community or special-status plant species are anticipated to occur on or near the Project area and that four wildlife species have a reasonable potential to occur on or near the Project area.

### **Sensitive Natural Communities and Special-Status Species**

#### **SENSITIVE NATURAL COMMUNITIES AND SPECIAL-STATUS PLANTS**

There was one sensitive natural community and 14 special-status plant species identified as having potential to occur within the subject quadrangle and eight surrounding quadrangles and/or within 10 miles of the Project. However, the Project area and vicinity have been highly disturbed for years by ongoing agriculture production and residential development and do not provide habitat for any of these sensitive natural communities or special-status plant species. The proposed wellsite is located adjacent to agricultural and rural residential uses and is in the vicinity to urban developed associated with the Cutler and Orosi communities. The proposed water storage tank is located in East Orosi and will be adjacent to residential development and agricultural operations. The pipelines are proposed with existing developed public right-of-way. No special-status plants were identified during the biological survey. Although protocol-level botanical surveys were not conducted and the survey that was conducted did not coincide with optimal blooming periods for all plant species, and also based on the highly disturbed landscape, it is not anticipated that special-status plant species would occur on the Project area.

#### **SPECIAL-STATUS WILDLIFE**

There were 20 special-status wildlife species that were identified as having a potential to occur within the subject quadrangle and eight surrounding quadrangles and/or within 10 miles of the Project area. Of the 20 species, 16 were eliminated from consideration due to a lack of suitable habitat within the Project site. The remaining four species have a low, moderate, or high potential to occur within the Project site and vicinity. Swainson's hawk (*Buteo swainsoni*) has a high potential to occur on or near the Project site, San Joaquin kit fox (*Vulpes macrotis mutica*) and burrowing owl (*Athene cunicularia*) have a moderate potential to occur on or near the Project site, and hoary bat (*Lasiurus cinereus*) has a low potential to occur on or near the Project site. Protocol surveys for specific special-status wildlife species were not conducted for this report because it was determined that such surveys were not warranted due to the conditions present on the Project site.

#### *Swainson's Hawk*

The Swainson's hawk has a high potential to occur on the Project or within the immediate area surrounding the Project area. A juvenile Swainson's hawk and its nest were present approximately 0.25-mile east of the Project during the survey. The most recent CNDDDB recorded occurrence (EONDX 87267) of Swainson's hawk is from 2008 and it is located

about 8.5 miles southwest of the Project area along Cottonwood Creek. Swainson's hawks are known to forage in fallowed and active agricultural fields, often growing hay or alfalfa, and they will nest in large trees in the vicinity of their foraging territory. There are numerous trees suitable for nesting at the residences in and around the Project area.

#### *Western Burrowing Owl*

The western burrowing owl has a moderate potential to occur within the Project area and immediate surrounding area, mainly in the fallowed fields in the Project buffer. The most recent CNDDDB recorded occurrence (EONDX 87267) documents two burrowing owls and their burrows approximately 4.2 miles southeast of the Project. No burrowing owls or sign of the species were observed during the survey, but potential burrows are present in the buffer of the southern Project area and owls could become established or be present from time to time as transient foragers.

#### *San Joaquin Kit Fox*

The San Joaquin kit fox has a moderate potential to occur within the Project site and immediate surrounding area. The nearest CNDDDB recorded occurrence (EONDX 67545) of the species is about four miles southwest of the Project area. No individuals or sign of San Joaquin kit fox was observed during the survey, but there is suitable denning and foraging habitat within the BSA. San Joaquin kit foxes are also known to opportunistically forage in urban areas. The San Joaquin kit fox is known to occur in the vicinity of the Project area and could potentially inhabit the area at any time or individuals could potentially be present from time to time as transient foragers.

#### *Hoary Bat*

The hoary bat has a low potential to occur within the Project area and immediate surrounding areas. The nearest CNDDDB recorded occurrence (EONDX 69375) is approximately 4.8 miles west of the Project area which occurred in 1943. This species roosts in dense foliage in forests, often near a source of water, and the trees present at some of the residents provide low-quality roosting habitat. No sign of the species was observed during the survey.

#### **CONCLUSION**

The Project and surrounding areas have been disturbed for years by ongoing agriculture crop cultivation and residential development. The Project area and vicinity does not provide suitable habitat for any special-status plant species and no mitigation measures to protect, avoid, or minimize impacts to special-status plant species are warranted.

There is the potential for four special-status or protected wildlife species to be impacted by Project-related activities. There is the potential for nesting migratory birds and raptors, which are protected by the Migratory Bird Treaty Act, to nest on or near the Project area. Compliance with Mitigation Measures BIO-1 through BIO-6 would protect, avoid, and

minimize impacts to special-status wildlife species. When implemented, these measures would reduce impacts to these species to below significant levels.

**MITIGATION MEASURE(S)**

**BIO-1:** Prior to ground-disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey within the Project area between 14 and 30 calendar days prior to the onset of construction-related activities. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, nesting birds, and other special-status species or their sign. The pre-construction survey shall be walked by no greater than 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency.

Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS, 2011). Occupied dens shall not be excavated but must be avoided by a buffer of 100 feet, or 250 feet if pups are present.

**BIO-2:** Prior to Project ground-disturbance activities, or within one week of being deployed for newly hired workers, all construction-related workers shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.

The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction-related activities, their legal protections, the definition of “take” under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction-related personnel. The program shall include:

- An acknowledgement form signed by each worker indicating that environmental training has been completed.
- A copy of the training, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain onsite for the duration of construction-related activities.

**BIO-3:** The following measures shall be implemented to reduce potential impacts to Swainson’s hawk: Nesting surveys for the Swainson’s hawks shall be conducted in accordance with the protocol outlined in the *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley* (Swainson’s Hawk Technical

Advisory Committee, 2000). If potential Swainson's hawk nests or nesting substrates are located within 0.5 mile of the Project area, then those nests or substrates shall be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson's hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site:

- One visit during January 1–March 20 to identify potential nest sites
- Three visits during March 20–April 5
- Three visits during April 5–April 20
- Three visits during June 10–July 30

A fewer number of visits may be permissible if deemed adequate by the County after consultation with a qualified biologist. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground-disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted. No surveys are required if all construction-related work will occur during the non-breeding season (September 30 to February 15).

If Swainson's hawks are found to nest within the survey area, active Swainson's hawk nests shall be avoided by 0.5 mile during the nesting period, unless this avoidance buffer is reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson's hawk issues. If a construction-related activities area occurs within this nesting site, construction-related activities must be delayed until the young have fledged (left the nest). The 2,500-foot radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction-related activities do not disrupt breeding behaviors.

**BIO-4:** A qualified biologist shall conduct a pre-construction survey on the Project site and within 500 feet (minimum) of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW's staff report on burrowing owl mitigation (CDFW, 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through non-invasive methods that either the birds have not begun egg laying and incubation, or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

If burrowing owls are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement or occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction-related activities shall occur at a rate sufficient to detect burrowing owl, if they return.

**BIO-5:** If construction-related activity is planned outside the nesting period for raptors (other than the Swainson's hawk and western burrowing owl) and migratory birds, no action shall be required. The nesting period for migratory birds and raptors is generally accepted to be from February 15 to August 31. If construction-related activity is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified onsite monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any time during the nesting season, nesting bird surveys shall be repeated every 30 days when construction-related activities are occurring throughout the nesting season.

No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction-related activity areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.

**BIO-6:** During all construction-related activities, the following Best Management Practices shall be implemented:

- k. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project location where activity has occurred.
- l. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within a specific Project activity site.
- m. To prevent inadvertent entrapment of kit fox or other animals during construction-related activities, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project site shall be thoroughly inspected

- for wildlife before the pipe is subsequently moved, buried, capped, or otherwise used in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.
- n. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction-related site for one or more overnight periods shall be thoroughly inspected for kit fox before the pipe is subsequently moved, buried, capped, or otherwise used in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW has been consulted and have determined that moving the pipe will not harm the trapped animal. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
  - o. No pets, such as dogs or cats, shall be permitted on the Project sites to prevent harassment, mortality, or destruction of kit fox or their dens.
  - p. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit fox and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal laws, rules, regulations, etc., as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit fox.
  - q. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.
  - r. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.
  - s. All sightings of San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.
  - t. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6620 or (916) 414-6600.

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**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.4b –Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

According to the CNDDDB search results, one sensitive plant community (Northern Hardpan Vernal Pool), exists approximately 2.9 miles southeast of the Project area. The Project area is highly disturbed and does not provide suitable habitat to maintain this community. No other sensitive natural communities were identified within the Project area or buffer areas during the biological reconnaissance survey. There are no anticipated impacts to sensitive natural communities as a result of the proposed Project. The Project area is generally surrounded by disturbed agricultural lands in all directions, scattered rural residences, clustered residential development in East Orosi, and urban scale development in Orosi.

Riparian habitat is defined as lands that are influenced by a river, specifically the land area that encompasses the river channel and its current or potential floodplain. The Project is not located within a river or an area that encompasses a river or potential floodplain. The Project would not have any adverse effect to a riparian habitat.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.4c –Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

The United States Army Corps of Engineers (USACE) has regulatory authority over the Clean Water Act (CWA), as provided for by the U.S. EPA. The USACE has established specific criteria for the determination of wetlands based upon the presence of wetland hydrology, hydric soils, and hydrophilic vegetation. There are no federally protected wetlands or vernal pools that occur within the Project area.

Wetlands, streams, reservoirs, sloughs, and ponds typically meet the criteria for federal jurisdiction under Section 404 of the CWA and State regulatory authority under the Porter-Cologne Water Quality Control Act. Streams and ponds typically meet the criteria for State regulatory authority under Section 1602 of the California Fish and Game Code. The Alta East Branch Canal runs through the Project and may meet the criteria for either federal jurisdiction or State regulatory authority. However, the Project will not impact this canal. There are no proposed changes to the existing Avenue 416 bridge which crosses over the

canal, and the replacement of the water main at this location would not require any work within the canal or on its banks. The Project will; however, require the use of the jack-and-bore technique to traverse beneath the canal which will likely result in no impact to this canal.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.4d –Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Wildlife migratory corridors are described as a linear stretch of land that connects two open pieces of habitat that would otherwise be unconnected. These routes provide shelter and sufficient food resources to support wildlife species during migratory movements. Movement corridors generally consist of riparian, woodlands, or forested habitats that span contiguous acres of undisturbed habitat and are important elements of resident species' home ranges.

The Project area and surrounding areas do not overlap any wildlife linkages or movement corridors identified by the Essential Habitat Connectivity Project (Spencer, W.D., et al, 2010). The proposed Project does not occur within any terrestrial migration route, significant wildlife corridor, or wildlife linkage area as identified in the *Recovery Plan for Upland Species in the San Joaquin Valley* (US Fish and Wildlife Service, 1998). The survey conducted for the Project did not find any evidence of a wildlife nursery or important migratory habitat being present within the Project area. Migratory birds and raptors could use habitat on or near the Project area for foraging and/or as stopover sites during migrations or movement between local areas.

The Alta East Branch Canal, which intersects the Project, may serve as a small-scale localized movement corridor, but the canal will not be impacted by the Project (see discussion at Item 3.4.4c).

The Project would not substantially affect migrating birds or other wildlife. The Project will not restrict, eliminate, or significantly alter a wildlife movement corridor, wildlife core area, or essential habitat connectivity area, either during construction-related activities or after the Project construction has been completed. Project construction-related activities will not substantially interfere with wildlife movements or reduce breeding opportunities.

The land surrounding the Project area has been developed for both rural- and urban-type uses and agricultural-related uses, and thus is generally a low-quality habitat for many species. There would be little opportunity for wildlife to pass through the Project area to

travel between these low-quality habitats. The proposed Project would not interfere with the movement of any native resident or migratory fish or wildlife species or impact established wildlife corridors or impede the use of native wildlife nursery sites. Therefore, the Project would have no impact on wildlife movements, would not affect movement corridors, or impede a nursery site.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.4e – Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

The Tulare County General Plan outlines a number of policies and implementation measures that aim to preserve biological resources within the County. The proposed Project is designed to be in compliance with this General Plan. There are no additional adopted local policies or ordinances protecting biological resources that would apply to this Project area. Therefore, implementation of the proposed Project would not conflict with any adopted local policies or ordinances protecting biological resources.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.4f – Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?**

There are two habitat conservation plans that apply in Tulare County. The Kern Water Habitat Conservation Plan only applies to an area in Allensworth; thus, the Project is not subject to this plan. The Recovery Plan for Upland Species in the San Joaquin Valley outlines a number of species that are important to the San Joaquin Valley; only the San Joaquin kit fox is included as part of the results from CNDDDB for this Project area. As noted earlier, the San Joaquin kit fox has a moderate potential to occur within the Project area and immediate surrounding area. No individuals or sign of San Joaquin kit fox was observed during the survey, but there is suitable denning and foraging habitat within the BSA. The San Joaquin kit fox is known to occur in the vicinity of the Project area and could potentially inhabit the area at any time or individuals could potentially be present from time to time as transient foragers. Based on this analysis, the Project would not conflict with any such plan.

***MITIGATION MEASURE(S)***

No mitigation is required.

***LEVEL OF SIGNIFICANCE***

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.5 - CULTURAL RESOURCES**

Would the Project:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur..

The impact analyses in this section based on a Phase I Survey/Class III Inventory, (ASM Affiliates, Inc., 2020), which is attached as Appendix D.

**Would the Project:**

**Impact #3.4.5a – Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?**

A cultural resources records search was conducted by the Southern San Joaquin Valley Archaeological Information Center (SJVAIC), California State University, Bakersfield, on October 19, 2020, for the Project. The purpose of the search was to determine whether any known cultural resources or previously conducted cultural resource surveys were located on or near the proposed Project area.

The records search covered an area within a 15-meter (approximately 49.2 feet) buffer of the Project site Area of Potential Effect (APE) and included a review of the *National Register of Historic Places*, *California Points of Historical Interest*, *California Registry of Historic Resources*, *California Historical Landmarks*, *California State Historic Resources Inventory*, and a review of cultural resource reports on file.

The results indicated that the Study Area had not been previously surveyed, and that one cultural resource was known to exist within it, a segment of the Atchison, Topeka and Santa Fe railroad. The Class III inventory/Phase I survey fieldwork was conducted on December 1, 2020, with parallel transects spaced at 15-meter intervals walked along the approximately 39.5-acre APE. Three cultural resources were identified within the APE: the segment of the previously recorded railroad grade; and two bridges that cross the Alta East Branch Canal.

The Class III inventory/Phase I survey fieldwork was conducted on 1 December 2020 with parallel transects spaced at 15-meter intervals walked along the approximately 39.5-ac APE. Three cultural resources were identified within the APE: the segment of the previously recorded railroad grade; and two bridges that cross the Alta East Branch Canal. The railroad grade is a remnant of the historical Atchison, Topeka and Santa Fe rail line. The rail tracks are still present within the Avenue 416 roadway, but everything except the grade itself has been removed elsewhere, with the exception of a relay cabinet and electrical pole on the north side of Avenue 416. This segment lacks all qualities of integrity and is recommended as not eligible for National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) listing. Bridge 46CD221, on Fruitvale Avenue, was built in 1915 and has been determined not eligible for NRHP listing by Caltrans. We concur with that determination and recommend it as ineligible for CRHR listing because it lacks association with a significant historical event or person and is a common property type without distinction with respect to design, construction and materials. The second bridge, just east of 13940 Avenue 416, is a concrete bridge embossed with the date "1968". It has not been previously evaluated for NRHP/CRHR eligibility or significance. Although it is marginally eligible for the age criterion for NRHP/CRHR listing, it is recommended as ineligible for either the NRHP or CRHR listing. It is not associated with an important historic event or person and is a common property type, again without distinction in terms of design, construction or materials. Based upon this analysis, a Determination of No Effect and No Significant Impact for cultural resources would be applicable and appropriate for this East Orosi Community Services District Project.

A Sacred Lands File (SLF) search by the Native American Heritage Commission (NAHC) was conducted on January 13, 2021. The NAHC responded (on January 13, 2021) that there are no known sacred lands within the APE (see Appendix D). The NAHC recommended that ten Native American tribes or individuals be contacted for further information regarding the general Project vicinity.

Since there is no indication of any historic resources on the Project area, subsurface construction-related activities associated with the proposed Project could potentially damage or destroy previously undiscovered historic resources. This is considered a

potentially significant impact. To reduce the potential impacts of the Project on unknown cultural resources, Mitigation Measure CUL-1 shall be implemented as applicable.

Although it is unlikely, due to the possible presence of undocumented tribal or cultural resources within the Project area, construction-related impacts on tribal or cultural resources could be potentially significant prior to mitigation. Implementation of the following mitigation measure would require appropriate steps to preserve and/or document any previously undiscovered resources that may be encountered during construction-related activities, including human remains. With implementation of Mitigation Measure CUL-1, impacts to cultural resources would be less than significant.

#### **MITIGATION MEASURE(S)**

**CUL-1:** If prehistoric or historic-era cultural materials are encountered during construction activities, all work within 50 feet of the find shall halt until a qualified professional archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards for prehistoric and historic archaeologist, can evaluate the significance of the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified professional archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation.

If a potentially eligible resource is encountered, then the qualified professional archaeologist, the Lead Agency shall arrange for either, (1) total avoidance of the resource or (2) test excavations to evaluate eligibility and, if eligible, total data recovery. The determination shall be formally documented in writing and submitted to the Lead Agency as verification that the provisions for managing unanticipated discoveries have been met.

#### **LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.5b – Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?**

See discussion for Impact #3.4.5a.

Although considered unlikely since there is no indication of any historical or archaeological resources on the Project area, subsurface construction-related activities associated with the proposed Project could potentially damage or destroy previously undiscovered archaeological resources. This is considered a potentially significant impact. Mitigation is proposed requiring implementation of standard inadvertent discovery procedures to reduce

potential impacts to previously undiscovered subsurface historical and archaeological resources.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measure CUL-1.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.5c –Disturb any human remains, including those interred outside of formal cemeteries?**

The records searches did not indicate the presence of any human remains, burials, or cemeteries within the Project area. No human remains have been discovered within the Project area, and no burials or cemeteries are known to occur within the the Project area. However, construction-related activities would involve earth-disturbing actions, and it is still possible that human remains may be inadvertently discovered, possibly in association with archaeological sites. Mitigation Measure CUL-2 has been included in the unlikely event that human remains are found during ground-disturbing activities. Accordingly, this is a potentially significant impact. Implementation of Mitigation Measure CUL-2 would reduce this potentially significant impact to less than significant.

**MITIGATION MEASURE(S)**

**CUL-2:** If human remains are discovered during construction or operational activities, further excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the Tulare County Coroner. All reports, correspondence, and determinations regarding the discovery of human remains on the Project site shall be submitted to the Tulare County Resource Management Agency.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.6 - ENERGY**

Would the Project:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur..

Would the Project:

**Impact #3.4.6a – Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?**

Construction-related activities of the proposed Project would increase energy (in the form of fuel) consumption due to the operation of construction-related equipment. Construction-related activities will be short-duration and temporary in nature regarding gasoline and diesel fuel consumption. The increase in fuel (energy) consumption associated with construction-related activities would be minimal in comparison to Statewide and regional fuel consumption. Construction-related equipment and vehicles would be operated in accordance with energy efficiency standards required under the California Energy Code and State level policies adopted by the California Energy Commission (CEC) including the Energy Action Plan that prioritizes energy resources efficiency for California’s future energy needs, thereby minimizing energy consumption associated with the construction-related equipment and vehicles primarily powered by non-renewable fuels. This includes limiting

idling time, ensuring that all equipment be maintained as recommended by manufacturer manuals, using electric equipment whenever possible in lieu of diesel- or gasoline-powered equipment, etc.

As a result, energy consumption of the proposed Project will be less than significant.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

There would be a *less than significant impact*.

**Impact #3.4.6b – Would the Project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

Assembly Bill 32 (Health and Safety Code Sections 38500–38599), also known as the California Global Warming Solutions Act of 2006, commits the State to achieving year 2000 GHG emission levels by 2010 and year 1990 levels by 2020. To achieve these goals, AB 32 tasked the California Public Utilities Commission and the California Energy Commission with providing information, analysis, and recommendations to the California Air Resources Board regarding ways to reduce GHG emissions in the electricity and natural gas utility sectors.

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2014, with energy provisions effective July 1, 2014. The 2013 CALGreen Code includes mandatory measures for non-residential development related to site development; water use; weather resistance and moisture management; construction waste reduction, disposal, and recycling; building maintenance and operation; pollutant control; indoor air quality; environmental comfort; and outdoor air quality. Mandatory measures for residential development pertain to green building, planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, environmental quality, and installer and special inspector qualifications.

In 2009, the SJVAPCD (Air District) adopted the following guidance documents applicable to projects within the San Joaquin Valley:

- Guidance for Valley Land Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.
- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.

This guidance and policy are the documents referenced in the Air District’s Guidance for Assessing and Mitigating Air Quality Impacts adopted in March 2015. Consistent with the District guidance and District policy above, the Air District acknowledges the current

absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

- If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS).
- If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the Lead Agency's discretion, a neighboring air district's GHG thresholds may be used to determine impacts. On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is Lead Agency. The SCAQMD guidance identifies a threshold of 10,000 MTCO<sub>2</sub> eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. This threshold is often used by agencies, such as the California Public Utilities Commission, to evaluate GHG impacts in areas that do not have specific thresholds (CPUC, 2015). Therefore, because this threshold has been established by the SCAQMD in an effort to control GHG emissions in the largest metropolitan area in the State of California, this threshold is considered a conservative approach for evaluating the significance of GHG emissions in a more rural area, such as Tulare County.

The proposed Project will not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The proposed Project will not increase energy consumption associated with long-term (operational) activities beyond existing levels given the nature of the proposed Project. All operations associated with the proposed Project will cease upon completion of the installation of the well, storage tank, and abandonment of the wells 1 and 2.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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### 3.4.7 - GEOLOGY AND SOILS

Would the Project:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## **Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur..

The impact analyses in this section based on a *Geotechnical Engineering Investigation Report*, (BSK Associates, 2020) which is attached as Appendix E.

### **Would the Project:**

**Impact #3.4.7a Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

**i) – Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture; however, surface fault rupture is not necessarily restricted to the area within the Alquist-Priolo Zone. The Alquist-Priolo Act prohibits the location of most structures for human occupancy across active fault traces. Within these zones, cities and counties must regulate certain development, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement.

According to the Tulare County General Plan, no substantial faults are known to occur in Tulare County or the Project sites. The closest fault that could affect the proposed Project area is the Pond Fault, which is 25 miles southwest of Orosi. The majority of the proposed Project will consist of trenching to install water mains, a well, and an above-ground water storage tank. The proposed Project would not expose any people or structures to adverse effects associated with fault rupture. Therefore, there will be no impact.

### **MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**ii) – Strong seismic ground shaking?**

Ground movement during an earthquake can vary depending on the overall moment magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. As a rule, the greater the earthquake magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. However, different geologic materials respond differently to earthquake waves. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking.

According to the Tulare County General Plan, ground shaking is the primary seismic hazard in Tulare County because of the County’s seismic setting and its record of historical activity. In the event of an earthquake on one of the nearby faults, it is likely that the Project sites would experience ground shaking and expose associated people and. The California Geological Survey and US Geological Survey conducts a Probabilistic Seismic Hazard Analysis based on historic earthquakes, slip rates on major faults and deformation throughout the region and the potential for amplification of seismic waves by near-surface geologic materials. The resulting earthquake shaking potential is used in developing building code design values, estimating future earthquake losses and prioritizing earthquake retrofit. The proposed Project will install a well, water storage tank, and replace water mains, and will not be erecting any low-rise structures. The proposed Project would not expose any people or structures to adverse effects associated with seismic ground shaking, therefore, there would be no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**iii) – Seismic-related ground failure, including liquefaction?**

See discussions for Impact #3.4.7a(i) and Impact #3.4.7a(ii). Areas that require investigations to evaluate if mitigation is needed for the potential of liquefaction and/or landslide ground displacement are located in zones referred to as “seismic hazard zones.” According to the Tulare County General Plan, the proposed Project is not located in a seismic hazard zone. As the proposed Project area is sufficiently far from known faults and consists primarily of a stable geological formation, it is not in a seismic hazard zone. The proposed Project-specific effects would be less than significant.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.7a iv) – Landslides?**

Refer to #3.4.7a iii).

Tulare County is designated as a severity zone “Nil” and “Low” for ground shaking with no declared landslides (Tulare County, 2020). The proposed Project sites and the surrounding areas are predominately flat and the potential hazard due to landslides from adjacent properties does not exist. The proposed Project would not expose people or structures to potential adverse effects from landslides. Therefore, the proposed Project would have no impact on exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.7b – Result in substantial soil erosion or the loss of topsoil?**

The proposed Project pipeline distribution system will be installed along the existing rights of way. The proposed water storage tank will be constructed on San Joaquin loam and the proposed well will be installed on Exeter loam (refer to Figure 3.4.7-1).

East Orosi soil is moderately to very deep and is well drained. The descriptions for Calgro-Valgro, saline-Sodic, Complex, and Hanford sandy loam is used to describe San Joaquin loam. Calgro-Calgro, saline-Sodic, complex has a low to moderate potential for erosion with zero to two percent slopes. Hanford sandy loam is a very deep, well-drained soil dominantly from granite with a moderately coarse textured alluvium and ranges from negligible to a medium runoff (Tulare County Resource Management Agency, 2017).

The installation of the well will be in soil designated as Exeter loam. Exeter loam is formed in an alluvium form, mainly granitic sources, and consists of moderately deep to a duripan and has a slope of zero to nine percent slopes (Tulare County Resource Management Agency Economic Development and Planning Branch, 2022).

The National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Type 1 Linear Underground/Overhead Projects (LUPs) Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities where greater than 30 percent of construction activities occur within the non-paved shoulders or land immediately adjacent to paved surfaces, or where construction occurs on unpaved improved roads, including their shoulders or land immediately adjacent to them (California Water Board, 2018). A SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement Best Management Practices (BMPs) that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sandbags, detention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. The Project site for the water storage tank, booster pump, well, and generator will be built on approximately 0.25-acre of land and does not meet the criteria for a standard Stormwater Pollution Prevention Plan (SWPPP) that disturbs and changes the land use on sites one acre and above. However, the proposed Project meets the criteria for a Type 1 LUPs SWPPP. Therefore, the proposed Project must comply with all rules and regulations of a Type 1 LUP site SWPPP for construction-related activities. Regulations include, but are not limited to, the following BMP requirements to minimize the potential for pollution related to material spills:

- Soil stabilization BMPs
- Sediment control BMPs
- Temporary gravel construction entrance/exit
- Run-on control

No soil erosion or loss of topsoil will result from installation of the proposed Project's underground pipeline distribution system. However, construction activities associated with the proposed Project water storage tank, booster pump, supply well, and generator would disrupt surface vegetation and soils and would expose these disturbed areas to erosion by wind and water. Therefore, proposed Project impacts would be less than significant with incorporation of mitigation measures.

Mitigation Measure MM HYD-1 requires the approval of a Type 1 LUPs SWPPP to comply with the NPDES General Construction Permit from the Central Valley Regional Water Quality Control Board (RWQCB).

In the long-term and after construction activities have been completed on the proposed Project storage tank site, the ground surface will have impermeable surfaces. The impermeable surface would include the concrete pad for the storage tank and supply well. The storage tank and supply well will be constructed on a 0.25-acre site and will not impact an area larger than one acre. Development of the proposed Project would therefore not result in conditions where substantial surface soils would be exposed to wind and water erosion. The proposed Project would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant with incorporation of mitigation measures.

**MITIGATION MEASURE(S)**

Implementation of MM HYD-1.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.7c – Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?**

As discussed under Impact #3.4.7a(iii), Tulare County is designated as a severity zone "Nil" and "Low" for ground shaking with no declared landslides. Liquefaction occurs when unconsolidated valley sediments are saturated, resulting in water being located to the ground surface where mud spouts or sand boils can emerge. When liquefaction occurs as described, soils lose supporting capabilities, and the minor displacement of soils can result in the total collapse of structures. Groundwater is less than 30 feet and below, primarily in the San Joaquin Valley portion of the County. Still, the soil types in this area do not create an environment where liquefaction is likely to occur because of the soil composition in the area. Impacts related to these types of geological hazards are site-specific and need to be evaluated on a site by site basis (Tulare County, 2020).

With adherence to all applicable State and local building codes and regulations and implementation of the policies contained in the draft Health and Safety Element, impacts associated with onsite or offsite landslide, subsidence, liquefaction, or collapse will be minimized. The Tulare County General Plan policies designed to minimize geologic hazard impacts to people and structures in the County include the following (Tulare County, 2020):

- HS-1.2 Development Constraints
- HS-1.3 Hazardous Lands
- HS-1.5 Hazard Awareness and Public Education
- HS-1.11 Site Investigations

The proposed Project sites for the new well and new storage tank will follow the site preparation Mitigation Measures GEO-1 AND GEO-2, as applicable, before any earthwork operations to avoid any lateral spreading, subsidence, or collapse. Therefore, the proposed Project will have a less than significant impact with mitigation.

**MITIGATION MEASURE(S)**

**GEO-1 Soil:**

- a. The areas of proposed improvements shall be cleared of surface vegetation and debris. Materials resulting from the clearing and stripping operations must be removed and properly disposed of offsite. In addition, all undocumented fills shall be

removed where encountered and where fills or structural improvements will be placed.

- b. Where existing utilities, inlets, or underground tanks are present, they shall be removed to a point at least two feet horizontally outside the proposed foundation areas. Resultant cavities must be backfilled with engineered fill compacted in accordance with the recommendations presented in this report.
- c. Following the stripping operations, the areas where shallow foundations are proposed must be over excavated to a minimum depth of one foot below existing site grades or one foot below the bottom of the footing elevation, whichever is deeper. Over excavation will extend laterally three feet beyond the edge of foundations for shallow footings. After over excavation, the bottom of the exposed soil shall be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. We recommend that non-expansive soil ( $EI < 20$ ) be used below the bottom of shallow foundations.
- d. For ring wall tank foundations, over excavation to a minimum depth of two feet below existing site grades or two feet below the bottom of the footing elevation, whichever is deeper. Because of the expansive material ( $EI > 20$ ) found at the storage tank site, either low expansive ( $EI < 20$ ) select onsite soils or low expansive ( $EI < 20$ ) import engineered fill shall be placed below the ring wall foundations. Over excavation should extend laterally three feet beyond the edge of the ring wall foundations. After over excavation, the bottom of the exposed soil will be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. Yielding areas should be observed by the geotechnical consultant and removed and recompacted if necessary.
- e. Following the required stripping and over excavation, in the areas of proposed shallow foundations, the exposed ground surface at the bottom of the over excavation shall be inspected by a geotechnical engineer to evaluate if loose or soft zones are present that will require additional over excavation.
- f. Screening of oversize material shall be anticipated if native soils are planned for use as trench backfill or engineered fill.
- g. Imported soil or native excavated soils, free of organic materials or deleterious substances, may be placed as compacted engineered fill. The material shall be free of oversized fragments greater than three inches in dimension. Engineered fill shall be placed in uniform layers not exceeding eight inches in loose thickness, moisture conditioned to within two to four percent above optimum moisture content and compacted to at least 90 percent relative compaction. Engineered fill placed on fill slopes must be placed in uniform layers not exceeding eight inches in loose thickness, moisture conditioned to near optimum moisture content, and compacted to at least 90 percent of relative compaction.
- h. An engineer or geotechnical consultant must be called to the site to verify the import material properties through laboratory testing.
- i. If possible, backfill operations will be scheduled during a dry, warm period of the year. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a “pumping” condition. This condition is caused by excess moisture in combination

with moving construction equipment, resulting in saturation and zero air voids in the soils. If this condition occurs, the adverse soils will need to be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which shall be subject to review and approval by an engineer or geotechnical consultant prior to implementation.

j. Import fill materials will be free from organic materials or deleterious substances. The Project specifications must require the contractor to contact an engineer or geotechnical consultant to review the proposed import fill materials for conformance with these recommendations at least one week prior to importing to the site, whether from onsite or offsite borrow areas. Imported fill soils must be non-hazardous and derived from a single, consistent soil type source conforming to the following criteria:

- Plasticity Index: < 12
- Expansion Index: < 20 (Very Low Expansion Potential)
- Maximum Particle Size: three inches
- Percent Passing #4 Sieve: 65–100
- Percent Passing #200 Sieve: 20– 45
- Low Corrosion Potential: Soluble Sulfates < 1,500 ppm
- Soluble Chlorides < 150 ppm
- Minimum Resistivity > 3,000 ohm-cm

#### **LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.7d – Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

The upper five (5) feet of the subsurface of the proposed Project site is located on soils that consist of silts with sand and clay. Based on the type of soils encountered in the top five feet of soil in the proposed storage tank site, soil expansion's potential is low. It is determined that there are no significant areas of highly expansive soils existing within the Project area.

The proposed Project will comply with all applicable requirements of the California Code of Regulations and the most recent California Building Standards Code that provides criteria for developing buildings with appropriate design and safety standards. The proposed storage tank site will be located on material with low expansion potential and will follow Mitigation Measure GEO-1, as applicable. Therefore, the proposed Project would have a less than significant impact with mitigations.

#### **MITIGATION MEASURE(S)**

Implementation of Mitigation Measure GEO-1.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.7e – Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?**

The proposed Project will be developed on Exeter loam, Porterville clay, and Hanford sandy loam. Exeter loam and Porterville clay have been designated as well drained. Hanford sandy loam, which uses the San Joaquin loam description is designated as moderately well drained according to the Tulare County General Plan. The proposed Project will not include septic tank installation or alternative wastewater disposal systems. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.7f – Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

The proposed Project would consist of the construction of a new supply well discharging through piping owned by the neighboring community of Orosi, the installation of a 300,000-gallon storage tank, the replacement of the old (existing) asbestos-containing concrete distribution pipe with a new piping, and abandonment of EOCSD wells. Although the proposed Project area is developed, activities will involve trenching and could potentially reveal undiscovered paleontological resources, it is highly unlikely, as the depth of the trenching would be less than 10 feet. Project-related potential impacts to paleontological resources would be less than significant.

However, there is a possibility that future ground-disturbing activities could cause damage to, or destruction of, previously undiscovered paleontological resources or unique geologic features. Implementation of Mitigation Measure GEO-2 would reduce potential impacts to a less-than-significant level. In addition, the Tulare County General Plan policies and guidelines direct the County to require construction to stop immediately if paleontological resources are uncovered during grading or other onsite excavation activities until appropriate mitigation is implemented. Therefore, with implementation of Mitigation Measure GEO-2, as applicable, the Project will have a less-than-significant impact.

**MITIGATION MEASURE(S)**

**GEO-2:** If any paleontological resources are encountered during ground disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other appropriate facility regarding any discoveries of paleontological resources.

If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from Project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.8 - GREENHOUSE GAS EMISSIONS**

Would the Project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur..

The impact analyses in this section based on a *Air Quality and Greenhouse Gas Assessment*, (Trinity Consultants, 2022) which is attached as Appendix B.

**Impact #3.4.8a – Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

The proposed Project’s greenhouse gas (GHG) emissions are primarily from mobile-source activities during construction and energy usage during operations. The short-term construction GHG emissions and long-term operational GHG emissions are considered less than significant for GHG impacts (Trinity Consultants, 2022). Therefore, as the proposed Project does not involve extensive mobile-source operational activity and includes short-term construction activities, the proposed Project is considered less than significant for GHG emission impacts.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.8b – Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

The following polices and implementation measures addressing greenhouse gas emissions are located in the Tulare County General Plan and the Recirculated Draft Environmental Impact Report.

**Policy:**

- **AQ-1.8 Greenhouse Gas Emissions Reduction Plan/Climate Acton Plan:**

The County will develop a Greenhouse Gas Emissions Reduction Plan (Plan) that identifies greenhouse gas emissions within the County as well as ways to reduce those emissions. The Plan will incorporate the requirements adopted by the California Air Resources Board specific to this issue. In addition, the County will work with the Tulare County Association of Governments and other applicable agencies to include the following key items in the regional planning efforts.

1. Inventory all known, or reasonably discoverable, sources of greenhouse gases in the County.
2. Inventory the greenhouse gas emissions in the most current year available and those projected for year 2020.
3. Set a target for the reduction of emissions attributable to the County's discretionary land use decisions and its own internal government operations.

- **AQ-1.9 Support Offsite Measures to Reduce Greenhouse Gas Emissions**

The County will support and encourage the use of offsite measures or the purchase of carbon offsets to reduce greenhouse gas emissions.

**Implementation Measure:**

- **AQ Implementation Measure #16:**

The County shall develop and maintain a climate action plan. The climate action plan shall include the following elements: an emissions inventory, emission reduction targets, applicable greenhouse gas control measures, and monitoring and reporting plan.

- **AG Implementation Measure #17:**

The County may inspect County facilities to evaluate energy use, the effectiveness of water conservation measures, production of GHGs, use of recycled and renewable

products, and indoor air quality to develop recommendations for performance improvement or mitigation. The County shall update the audit periodically and review progress towards implementation of its recommendations.

The proposed Project would comply with all applicable County, State and federal guidelines rules and regulations to reduce GHG emissions. In addition, the proposed Project would comply with the Tulare County Climate Action Plan, and State (Assembly Bill 23). The proposed Project would be consistent with the SJVAPCD's Climate Change Action Plan recommendations in its guidance for addressing GHGs in CEQA.

The proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the proposed Project would have a less than significant impact.

***MITIGATION MEASURE(S)***

No mitigation is required.

***LEVEL OF SIGNIFICANCE***

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
<b>3.4.9 - HAZARDS AND HAZARDOUS MATERIALS</b>				
Would the Project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3)

replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur..

**Would the Project:**

**Impact #3.4.9a – Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

The asbestos-containing materials will be abandoned in place. The pipes are covered in concrete with asbestos fibers embedded within it. The pipes will be not disturbed or concrete removed. All activities related to the cutting and capping of the existing EOCS D distribution system will follow State and local standards for handling asbestos-containing materials. The construction-related activities and operation of the water system extension would not involve the transport or use of large quantities of hazardous materials. Although construction of the proposed Project would involve the transport and use of minor quantities of hazardous materials, such materials would be limited to fuels, oils, lubricants, hydraulic fluids, paints and solvents utilized at the Project areas for construction purposes. Moreover, use of such materials would be temporary in nature and would cease upon completion of Project construction.

The presence and use of these materials, which can be classified as hazardous materials, create the potential for accidental spillage and exposure of workers to these substances. Hazardous and non-hazardous wastes would likely be transported to and from the proposed Project site during the construction phase of the proposed Project. Construction-related activities could involve the use of some hazardous materials, such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products, although these materials are commonly used during construction-related activities and would not be disposed of on any site within the Project area. Installation of the proposed new well and new storage tank will occur in accordance with all applicable regulations to minimize potential public exposure.

The Tulare County Health and Human Services Agency, Environmental Division identifies a hazardous materials handler as any facility storing hazardous materials or wastes in quantities equal to or greater than the following:

- 55 gallons of a liquid substance
- 500 pounds of a solid substance
- 200 cubic feet of compressed gas

The proposed Project will include storage of a 55-gallon drum of 12 percent sodium hypochlorite and, as such, will be identified as a facility storing hazardous materials. All hazardous materials must be disclosed in their inventory to the County and first responders in the form of a Hazardous Materials Business Plan. Implementation of the following mitigation measure will reduce any Project-related potential impacts to a level that is less than significant.

**MITIGATION MEASURE(S)**

**HAZ-1:** The Project proponent shall submit a Hazardous Materials Business Plan (HMBP). The Hazardous Materials Business Plan will be prepared in accordance with Tulare County Environmental Health Department and the California Department of Toxic Substances Control policy and guidelines. The HMBP will contain any Acutely Hazardous Materials (AHM) that handles a minimum of 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of compressed gas or any AHM that must be included in a business plan that requires an emergency response to a possible release of hazardous materials. The Project proponent shall comply with proper handling, labeling, accumulation, and disposal of waste as required in the approved HMBP.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation*.

**Impact #3.4.9b – Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

See discussion on Impact #3.4.9a, above.

During the installation of the new well, new water storage tank, replacement of the existing EOCSD water distribution system, water pipeline connections between OPUD and EOCSD, and associated improvements, applicable precautions will be taken to reduce the likelihood of an accident resulting in the release of hazardous materials in the environment. All contractors shall transport, store, handle, and dispose of construction-related hazardous materials consistent with relevant regulations and guidelines, including those recommended and enforced by Caltrans, the Central Valley RWQCB, and Tulare County Environmental Health Department standards. Implementation of HAZ-1 where a HMBP will be required should the Project handle hazardous materials at or in excess of reporting thresholds, and will address material handling requirements and procedures for reporting and handling any accidental spills. With the mitigation measure and implementation of State and local hazardous materials handling requirements, the Project will not result in a significant hazard to the environment through an upset or accident and would result in a less than significant impact.

The proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of

hazardous materials into the environment. Therefore, the proposed Project would have a less than significant impact.

**MITIGATION MEASURE(S)**

Implementation of MM HAZ-1.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated.*

**Impact #3.4.9c – Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

The proposed Project is not located within 0.25 mile of an existing or proposed school. The nearest schools to the Project sites are Palm Elementary School in Orosi (approximately 1.25 miles west of East Orosi) and Cutler Elementary School, which is approximately, 0.30 miles south of the proposed new well location. Therefore, the proposed Project would have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant.*

**Impact #3.4.9d – Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

The California Department of Toxic Substances Control (DTSC) website determined Cortese Act locations on or near the Project site (California Department of Toxic Substances Control, 2023). The DTSC indicated an active site located on a parcel of land (APN: 025-220-09) off of Avenue 416, east of Road 130 (California Department of Toxic Substances Control, 2021). However, the active DTSC site is located south of where the Orosi water system has existing piping. The proposed Project will be occur on the right-of-way and will not occur on or be impacted by this active DTSC.

The proposed Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

No impact.

**Impact #3.4.9e – For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?**

There are no airports, public or private, that are within two miles of the proposed Project site. Therefore, there would be no impact to people residing or working in the proposed Project area due to excessive noise or a safety hazard from an airport.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

There would be *no impact*.

**Impact #3.4.9f Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?**

The Tulare County currently has adopted the 2018 Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP), an Area Emergency Operation Plan (EOP) and a 2011 Disaster Preparedness Guide (DPG). In the event of a large-scale emergency or disaster, response activities within Tulare County are guided by the Tulare County Emergency Operations Plan (EOP). The EOP implements the California Standardized Emergency Management System (SEMS) and provides organizational structure and functional guidance through the initial response, extended response, and recovery phases of operations.

The proposed Project will comply with all guidelines in the MJLHMP, EOP, and DPG throughout construction and operations of the proposed Project and in the event of an emergency, disaster, or evacuation event; as applicable. Construction-related activities and operation of the proposed Project would not require long-term roadway closures. The proposed Project would not impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Therefore, the proposed Project would have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.9g –Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?**

The proposed Project is surrounded by a mix of rural residences and agricultural-related uses, and does not consist of any wildlands. According to CAL FIRE’s Fire Hazard Severity Zones Maps, the proposed Project site is not located within a hazard zone classified as Very High, High, or Moderate for wildland fires (Cal Fire, 2007). Construction and operation of the proposed Project is not expected to increase the risk of wildfires on and adjacent to the proposed Project site.

The proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fire. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

There would be *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	
<b>3.4.10 - HYDROLOGY AND WATER QUALITY</b>					
Would the Project:					
a.	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
	(i) Result in substantial erosion or siltation onsite or offsite?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(ii) Substantially increase the rate of amount of surface runoff in a manner which would result flooding onsite or offsite?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

### **Would the Project:**

#### **Impact #3.4.10a – Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality?**

The proposed Project would install underground pipelines that would not result in increased runoff. The proposed pipelines would be constructed within the existing road rights-of-way. East Orosi has a storm drainage system designed to collect runoff using pipes, connecting inlets, and transporting the collected runoff to a designated discharge location. No chemicals would be used in the construction or operation of the pipeline that could be discharged into surface water.

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface water runoff. Materials that could potentially contaminate the construction area are spills, leaks, diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids.

To reduce potential impacts to water quality during construction activities, Mitigation Measure HYD-1 requires the proposed Project proponent to file a Notice of Intent (NOI) to comply with the NPDES General Construction Permit and prepare a Type 1 LUP SWPPP. The proposed Project SWPPP would include BMPs targeted at minimizing and controlling the construction and post-construction runoff and erosion to the maximum extent practicable. Mitigation Measure HYD-2 requires the Lead Agency to limit grading to the minimum area necessary for the construction and operation of the proposed Project.

To reduce potential impacts to water quality during construction and operation activities, Mitigation Measures HYD-1 and HYD-2 would be required. With mitigation, the proposed Project is not anticipated to violate any water quality standards or result in significant impacts to the waste discharge requirements or otherwise substantially degrade surface water quality. Therefore, the proposed Project would have a less than significant impact with the implementation of mitigation, as applicable.

**MITIGATION MEASURE(S)**

**HYD-1:** Prior to construction, the Project proponent shall submit an approved copy of (1) the approved LUPs SWPPP and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the Type 1 LUPs SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended Type 1 BMPs for the construction phase may include the following:

- Soil stabilization BMPs
- Sediment control BMPs
- Temporary gravel construction entrance/exit
- Run-on control

**HYD-2:** The Project proponent shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include Best Management Practices to limit on-site and off-site erosion, as applicable.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated.*

**Impact #3.4.10b – Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?**

The proposed Project will require drilling a new well in order to supply the community of East Orosi with a contaminant-free and reliable source of water. Some water will be used during construction-related phases for dust suppression; however this water usage will be short-term, temporary, and intermittent to suppress dust as needed. The proposed Project will also result in the replacement of the current (existing) water distribution pipeline system for the community of East Orosi and the development of a water storage tank to meet current fire code demands.

Table 3.4.10-1 illustrates the water demands of EOCSD, OPUD, and the Family Education Center and the anticipated combined water demands of the consolidated service area (see Appendix F) (QK, 2023b).

**Table 3.4.10-1  
Estimated Water Demands**

<b>Individual Water System Demands and Consolidation Demand</b>	<b>Maximum Day Demand (MDD) (gpm)</b>	<b>Peak Hourly Demand (gpm)</b>	<b>Source Capacity (gpm)</b>	<b>Source Capacity with Highest Producing Source (gpm) offline</b>	<b>Standby Source (gpm)</b>	<b>Storage (gallon)</b>
Family Education Center	29	43.5	N/A	N/A	N/A	N/A
EOCSD	243	364.5	N/A	N/A	N/A	N/A
OPUD	1,516	2,274	2,225	1,575	650	750,000
<b>Total</b>	<b>1,788</b>	<b>2,682</b>	<b>2,225</b>	<b>1,575</b>	<b>650</b>	<b>750,000</b>
<b>Combined</b>						
30 Residences along Avenue 416	73	110	N/A	N/A	N/A	N/A
<b>Total Combined w/ Residences along Avenue 416</b>	<b>1,861</b>	<b>2,792</b>	<b>2,225</b>	<b>1,575</b>	<b>650</b>	<b>750,000</b>

Source: Appendix F

The proposed Project will not expand the size of the community or involve any elements that require excessive water use. The new well is simply a replacement of existing wells and, therefore, would not increase usage by the community. Therefore, impacts from the proposed Project would be less than significant.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

**Impact #3.4.10c(i) – result in substantial erosion or siltation onsite or offsite?**

The proposed Project's new (replacement) underground distribution pipeline system would not result in an alteration to the existing drainage pattern. The proposed pipeline would be constructed within existing road rights-of-way. Roadways (Avenue 408 and Road 128) where the pipeline from the new well will be located do not have an underground storm water collection facilities in place. Rather, storm water flows to the nearest inlet at the intersection of Road 128 and Avenue 408 where it then enters the existing storm water drainage system in Cutler. Avenue 416 does not have stormwater facilities outside of Orosi, as such, stormwater flows off of Avenue 416 due to the slopes of the roadway. East Orosi does not currently have a stormwater drainage system.

The proposed Project's new water storage tank and new supply well will alter the existing drainage pattern by constructing a concrete pad and other structures. Although the proposed new storage tank and new supply well will change the drainage pattern, the proposed Project site is not anticipated to substantially alter the drainage pattern of the area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite. Stormwater will be retained on-site through the use of swales. Therefore, the proposed Project would have a less than significant impact with the implementation of mitigation measures, as applicable.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures MM HYD-1 and MM HYD-2.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.10c(ii) – substantially increase the rate of amount of surface runoff in a manner which would result flooding onsite or offsite?**

The proposed new (replacement) water distribution systems pipeline, new water storage tank, and new well would not result in increased runoff. The proposed pipeline would be constructed within existing road rights-of-way. Following construction, the trenches would be backfilled and restored to roadways and gravel roadway shoulders. Therefore, the proposed Project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite. Therefore, the proposed Project would have a less than significant impact with the implemented mitigation measures.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures HYD-1 and HYD-2.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.10c(iii) – create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

The extent of erosion on specific locations would typically vary depending upon slope steepness and stability, vegetation, percentage of cover, concentration of runoff, and weather conditions. No streams or rivers exist within the proposed Project’s vicinity that would result in substantial erosion or siltation onsite or offsite.

The proposed new storage tank and new supply well, will have an effect on the existing drainage pattern of the site by the construction and increase in impervious surfaces; however, drainage impacts are expected to be minimal. The proposed Project sites would require grading for a concrete foundation for the storage tank and various other proposed Project-related items. The Tulare County General Plan Policy (PFS-4) specifies that site improvements within Urban Area Boundaries (UAB) and Urban Development Boundaries (UDB) planned communities include adequate stormwater drainage systems. That includes adequate capture, transport, and detention/retention of stormwater (Tulare County, 2012).

If a stormwater drainage basin is necessary for Project construction-related activities, stormwater detention would remain on-site through the use of grading and/or swales. Once constructed, water would be directed to the street, where it would flow to an existing county-operated stormwater retention basin on the southside of East Orosi. As outlined in MM HYD-3, if necessary, the Project operator will consult with County staff regarding the sufficient storage of stormwater. Therefore, the proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

With implementation of mitigation measures, as applicable, the proposed Project would not alter the existing drainage pattern of the site or area by altering the course of a stream or river, substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite, contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, nor provide additional sources of polluted runoff. HYD-3 requires that the applicant consult with the Tulare County Public Works Department regarding the designated locations of retention basins in the area and the use of said basins.

**MITIGATION MEASURE(S)**

**HYD-3:** The applicant shall consult with the Tulare County Public Works Department regarding the designated locations of detention basins in the Project area and the use of said basins. In the event there is not currently a basin having capacity to serve the storage tank site, the Project shall cooperate with the County to achieve adequate stormwater retention.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.10c(iv) – impede or redirect flood flows?**

Construction and operation of the proposed Project is relatively flat and is in a minimal flood hazard area. With implementation of Mitigation Measure HYD-3, floodwater or stormwater will be captured by on-site grading and/or swales (or some form of detention basin) . The proposed Project will not impede or redirect floodwaters and will not change the drainage pattern of the site or the area, through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirects flood flows.

Therefore, with implementation of Mitigation Measure HYD-3, the proposed Project will have a less than significant impact.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measure HYD-3.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.10d – In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?**

The proposed new well site and portions of Avenue 408, Road 128, Avenue 416, and Ione Road are in a 0.2 percent chance flood hazard area, and portions of Avenue 418, Idaho Road, Avenue 417, and Fruitvale Road are in a one percent annual chance flood hazard. The proposed Project area is not near any major body of water. The proposed new pipeline system would be constructed within existing road rights-of-way, which are highly disturbed. Following construction-related activities, the trenches would be backfilled and restored to roadways and gravel roadway shoulders. The proposed Project’s new storage tank is in a minimal flooding area, and the new supply well is in a 0.2 percent chance flood hazard. The proposed Project is not in an area where tsunamis, seiche zones, or risk of release of pollutants due to Project inundation. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.10e – Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

The California Sustainable Groundwater Management Act (SGMA) was enacted by the State of California in 2014 and provides a guideline for regulating groundwater production. SGMA also gives local agencies the ability to manage groundwater and create Groundwater Sustainability Agencies (GSA). The GSA is responsible for developing and implementing a Groundwater Sustainability Plan (GSP). The purpose of the GSP is to provide measurable goals to prevent unreasonable physical harm to the basin or the water resource (Kings River East Groundwater Sustainability Agency, n.d.).

The OPUD and EOCS D are located within the Kings River East GSA. The Kings River East GSA Groundwater Sustainability Plan has a permitting process for the abandonment and installation of new wells. The permitting process is a ministerial process and does not require CEQA or discretionary action (Kings River East Groundwater Sustainability Agency, 2019).

The proposed Project will not conflict with or obstruct the implementation of the Tulare County Water Quality Control Plan or Sustainable Groundwater Management Plan. The proposed Project will only draw water from underground (subsurface) sources. The proposed Project will comply with all water quality and sustainable groundwater management plans.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.11 - LAND USE AND PLANNING**

Would the Project:

- |    |   |                          |                          |                          |                                     |
|----|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. | Physically divide an established community?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. | Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

**Would the Project:**

**Impact #3.4.11a – Physically divide an established community?**

The proposed Project area is comprised of predominantly agricultural, rural residences, and clustered residential in East Orosi. The proposed site for the new well is generally surrounded by agricultural lands. The proposed new storage tank has agricultural use properties located to the immediate north, east, and south and has single-family homes located to the west. The proposed Project area in its entirety is within the unincorporated communities of Orosi and East Orosi. The proposed Project would not physically divide an established community. Therefore, the proposed Project will have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.11b – Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

As indicated in the Tulare County General Plan, the Urban Development Boundary (UDB) of Orosi and East Orosi is designated as a mixed-use community. The proposed Project will be locating the proposed new well in an agricultural area; however, as stated, it will be within a UDB designated area. The new storage tank will be located directly to the east of the site in an agricultural area with residential housing. The new storage tank is also located in a UDB designated area and zoned as Rural Residential (R-A). The proposed Project does not consist of elements that would cause a significant environmental impact. Therefore, the Project will have no impact.

**MITIGATION MEASURE(S)**

No mitigation required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.12 - MINERAL RESOURCES**

Would the Project:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

**Would the Project:**

**Impact #3.4.12a – Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?**

No current mineral extraction activities exist on the proposed Project site nor are any mineral extraction activities included in the proposed Project design. The proposed Project would not result in the loss of availability of mineral resources as the proposed Project does not propose the extraction of mineral resources. Additionally, the proposed Project would not restrict the ability of mineral rights’ holders, in the area, to exercise their legal rights to access surrounding sites for the exploration and/or extraction of underlying oil research or other natural resources.

The proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Therefore, the proposed Project would have no impacts.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.12b – Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

The proposed Project is not located in a designated mineral resource zone according to the Tulare County General Plan, which indicates the likelihood of mineral resources is minimal. The nearest mine to the proposed Project area is Orosi Rock, which is approximately one-mile northeast of the Project area.

The proposed Project would not impact any locally important mineral resource recovery site delineated on a local general plan or other land use plans. Therefore, there would be no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.13 - NOISE**

Would the Project result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the EOCSD drinking water customers and the Family Education Center into the OPUD. Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

Would the Project result in:

**Impact #3.4.13a –Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?**

Proposed Project construction-related activities would involve temporary, short-term, and intermittent noise sources including site preparation, activities related to the replacement of the existing distribution pipeline system, installation of the new (replacement)

distribution pipeline system, construction of the new water storage tank, and installation of a new well. Construction-related short-term, temporary, and intermittent noise levels would be higher than existing ambient noise levels in the proposed Project area, but would not occur after construction-related activities are completed. Operation and maintenance noise would be similar in character to existing noise in the area resulting from existing neighboring agricultural-related operations.

Tulare County General Plan Policies HS-8.18 and HS-8.19 address noise generated from construction activity. Policy HS-8.18 limits noise-generating activities (such as construction-related activities) to hours of normal business operation unless specific County approval is given. Construction-related activities would be restricted to daytime hours and would be short-term, temporary, and intermittent in nature. Policy HS-8.19 requires the County to ensure contractors implement best practices as appropriate to reduce the construction-related noise impacts.

#### **Policy HS-8.18 Construction Noise**

The County shall seek to limit the potential noise impacts of construction activities by limiting construction activities to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday when construction activities are located near sensitive receptors. No construction shall occur on Sundays or national holidays without a permit from the County to minimize noise impacts associated with development near sensitive receptors.

#### **Policy HS-8.19 Construction Noise Control**

The County shall ensure that construction contractors implement best practices guidelines (i.e.; berms, screens, etc.) as appropriate and feasible to reduce construction-related noise impacts on surrounding land uses.

By complying with Tulare County General Plan Policies applicable to noise, particularly HS-8.11 Peak Noise Generators, HS-8.18 Construction Noise, and HS-8.19 Construction Noise Control, the proposed Project would have a less than significant impact.

#### ***MITIGATION MEASURE(S)***

No mitigation is required.

#### ***LEVEL OF SIGNIFICANCE***

Impacts would be *less than significant*.

#### **Impact #3.4.13b – Generation of excessive groundborne vibration or groundborne noise levels?**

There are no federal or State standards that address construction noise or vibration. Additionally, Tulare County does not have regulations that define acceptable levels of vibration. One reference suggesting vibration standards is the Federal Transit

Administration (FTA) publication concerning noise and vibration impact assessment from transit activities. Although the FTA guidelines are to be applied to transit activities and construction, they may be reasonably applied to the assessment of the potential for annoyance or structural damage resulting from other activities. To prevent vibration annoyance in residences, a level of 80 VdB (vibration velocity level in dB) or less is suggested when there are fewer than 70 vibration events per day. A level of 100 VdB or less is suggested by the FTA guidelines to prevent damage to fragile buildings. Table 3.4.13-1 describes the typical construction equipment vibration levels. While these construction-related activities would result in groundborne vibration, such groundborne noise or vibration, would attenuate rapidly from the source and would not be generally perceptible outside of the construction-related areas. In addition, there would not be any vibrational impacts from operation and maintenance activities.

Equipment	PPV at 25 ft. (in/sec)	Approximate L <sub>v</sub> *at25 ft.
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

<sup>a</sup> From NRS Table 3-5, included in Appendix "D" of this draft EIR.  
\* RMS velocity in decibels (VdB) re 1 minch/second

Construction-related activities in general can have the potential to create groundborne vibrations. However, based on the soil types found in the general proposed Project vicinity, it is unlikely that any blasting or pile-driving would be required in connection with construction of the proposed Project. Therefore, the potential for groundborne vibrations to occur as part of construction-related activities of the proposed Project will be non-excessive. Furthermore, operation of the proposed Project would not contain any activities which would create excessive groundborne vibrations. The proposed Project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Therefore, the proposed Project would have a less than significant impact.

#### **MITIGATION MEASURE(S)**

No mitigation is required.

<sup>2</sup> Draft Cutler-Orosi Community Plan 2021 Update. Environmental Impact Report. Page 3.13-22. Accessed January 2022 at: <https://tularecounty.ca.gov/rma/planning-building/environmental-planning/environmental-impact-reports/cutler-orosi-community-plan-2021-update/final-draft-environmental-impact-report-for-the-cutler-orosi-community-plan-update/>

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.13c – For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?**

The proposed Project is not in the immediate vicinity of an airport land use plan. The nearest airport is Sequoia Field, located approximately 7.7 miles southwest of the proposed Project site. The proposed Project predominantly includes the construction of a new (replacement) subsurface water distribution system pipeline network, a new water storage tank, and a new supply well; it would not impact a public airport or public use airport. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.14 - POPULATION AND HOUSING**

Would the Project

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

**Impact #3.4.14a – Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

The proposed Project is intended to result in the installation of a new storage tank and a new well to provide the community of East Orosi clean, reliable water. Drilling a new well to connect to a deeper aquifer for a cleaner water source would accomplish this goal. In addition to drilling a new well, the proposed Project will replace the existing water distribution system pipeline in East Orosi and connect to OPUD’s existing distribution system to transport clean water via an underground from the proposed new well (located west of Road 128 and north of Avenue 408) to East Orosi.

The proposed Project is not intended to accommodate or induce any new development in East Orosi. The proposed extension of infrastructure would be to connect to OPUD’s existing

water distribution system to achieve two general objectives, to ensure both Orosi and East Orosi have a readily available water supply and to use Orosi's existing water distribution system to convey water to East Orosi.

The proposed Project would not induce any population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). Therefore, the proposed Project would result in *no impact*.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.14b – Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

The proposed Project would result in the construction of a new water storage tank, replacement of the existing water distribution system pipeline, and construction of a new supply well. The new water storage tank will be built on a parcel (APN: 025-110-020) located on the east side of Lone Road and the new well will be installed on parcel (APN: 025-150-045) located on the north side of Avenue 408. The new (replacement) water distribution system pipeline would be constructed within the rights-of-way within East Orosi roadways. No residences would be affected by the proposed Project-related activities. In addition, it is anticipated that construction-related workers would come from the surrounding area and would not require new housing. The proposed Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.15 - PUBLIC SERVICES**

Would the Project:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:

(i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:

### **Impact #3.4.15a(i) - Fire Protection?**

The proposed Project will not be providing or physically altering any government facilities. The proposed Project is within the service area of the Tulare County Fire Department. The Project will not construct any habitable structures that would increase the need for fire protection services. The proposed underground water distribution pipeline system will not require electricity or flammable materials that could ignite a fire. The potential for a fire to ignite at the new water storage tank and new supply well is unlikely and would not pose a significant threat to nearby properties. The new storage tank and new well would be constructed with the approval of the Tulare County Fire Department in compliance with California Fire Codes.

Fire protection and emergency medical services to East Orosi are provided by the Tulare County Fire Department. The Tulare County Fire Station #4 is located approximately two miles west of East Orosi at 40779 Road 128, Cutler/Orosi Fire Station. Cutler-Orosi Fire Station #4 and Patrol 4, Engine 4, and Engine 204 are assigned to this location. Paid on-call fire fighters are assigned to this station, and they respond when called out to an incident. Response time is approximately five minutes from this station to East Orosi.<sup>3</sup> Because the Project is not constructing structures that would be considered susceptible to or create fire hazards, it is not anticipated to result in substantial or adverse impacts to or cause an increase in fire protection services. The proposed Project would result in no impact.

#### ***MITIGATION MEASURE(S)***

No mitigation is required.

#### ***LEVEL OF SIGNIFICANCE***

The Project would result in *no impact*.

### **Impact #3.4.15a(ii) – Police Protection?**

The proposed Project consists of a new supply well, installing a new 300,000-gallon storage tank, replacing the old (existing) asbestos-containing concrete distribution pipe, and abandoning of the non-compliant wells.

The proposed Project will not impact fire protection services. The County of Tulare’s Sheriff’s Department sub-station operates in Orosi, located at 12800 Avenue 416, approximately 2.0 miles west of East Orosi. “Police protection services are provided in Cutler-Orosi by the Tulare County Sheriff’s Department sub-station, located at 12800 Avenue 416, in Orosi. The Substation covers approximately 289 square miles serving a rural population to include the unincorporated communities of Cutler, East Orosi, Orosi, Seville, Sultana, Traver and Yettlem. The Substation runs a four-shift operation, which includes 23 deputies, four (4) sergeants and one (1) lieutenant. There are a minimum of three deputies and one sergeant in the field

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<sup>3</sup> East Orosi Community Plan 2017. Page 43. Accessed January 2022 at: [https://tularecounty.ca.gov/\\_api/render/file/?fileID=8C54A5ED-5056-A959-DBDDE01CB7583074](https://tularecounty.ca.gov/_api/render/file/?fileID=8C54A5ED-5056-A959-DBDDE01CB7583074).

at all times. In addition, general shift staffing the communities of Cutler-Orosi are assigned a Community Based Officer assigned specifically to those areas.”<sup>4</sup> Police service response is, and would remain, adequate to the proposed Project and surrounding areas as the Project area lies within the response time and range specified in Tulare County General Plan Policy PFS-1.9 Sheriff Response Time wherein The County shall work with the Sheriff’s Department to achieve and maintain a response time of:

- Less than 10 minutes for 90 percent of the calls in the valley region; and
- 15 minutes for 75 percent of the calls in the foothill and mountain regions.

While the County of Tulare’s Sheriff’s Office may be contacted for non-emergency situations (such as vandalism), the proposed Project is not anticipated to require increased police protection. Therefore, the proposed Project would result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.15a(iii) – Schools?**

The proposed Project will not negatively impact any schools or educational facilities. Orosi and East Orosi are within the Cutler-Orosi Joint Unified School District. The nearest school is Palm Elementary School (located in Orosi) approximately 1.25 miles west of East Orosi. However, as a part of this Project, the Cutler-Orosi Joint Unified School District Family Education Center will be connected to the new consolidated water system and potable water will be provided. As such, the proposed Project would not impact schools and would result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.15a(iv) – Parks?**

The proposed Project does not include construction of homes or habitable structures that have permanent residents. It will not provide or physically alter any parks, nor does it increase the need for new parks or use of existing parks. The nearest park to East Orosi is

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<sup>4</sup> Op. Cit. 1,321.

Ledbetter Park (located in the unincorporated community of Cutler) is approximately 2. miles west of East Orosi. Therefore, the proposed Project would result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.15a(v) – Other Public Facilities?**

The proposed Project does not involve creating any new residential development or other new facilities that could result in an influx of population such that additional library facilities would be needed. The nearest library (Orosi-Culter Branch Library)<sup>5</sup> is located approximately 1.5 miles west of East Orosi. Therefore, the proposed Project would result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

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<sup>5</sup> Tulare County Libraries. <https://www.tularecountylibrary.org/locations>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.16 - RECREATION**

Would the Project:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

**Would the Project:**

**Impact #3.4.16a –Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

The proposed Project is being prepared to remedy an existing public health issue (in the form of an unreliable and contaminated water source) within the unincorporated community of East Orosi. The proposed Project’s new (replacement) distribution pipeline, new water storage tank, and new supply well are intended to supply the same number of services in East Orosi as the current system. These improvements are not intended to provide additional capacity for future development. Typically, the increased use of parks and recreational facilities results with the addition of new housing and the accompanying growth in the population. No new housing is proposed as part of the proposed Project. Therefore, the proposed Project would have a no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.16b – Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

The purpose of the proposed Project is to address the high nitrate found in the water supply to East Orosi and to provide the community with a safe, reliable water supply. The proposed Project’s construction-related activities will be short-term, temporary, and intermittent and does not include the construction or the expansion of recreational facilities. Therefore, the proposed Project would result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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### 3.4.17 - TRANSPORTATION

Would the Project:

a.	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

Would the Project:

**Impact #3.4.17a –Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?**

The proposed Project will not construct any new circulation (transit) systems, roadways, or bicycle and pedestrian facilities. The proposed Project would result in short-term, temporary, and intermittent traffic impacts during construction-related activities. Following completion, the new storage tank, new supply well, and new (replacement) water distribution system pipeline would not generate vehicle trips, with the exception of

routine/typical maintenance-related trips. Therefore, the proposed Project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.17b –Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?**

See Impact #3.4.17a.

As of July 1, 2020, SB 743 requires that lead agencies analyze the transportation impacts of new projects regarding the new metric of vehicle miles traveled (VMT). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roadways. If a project adds car travel roads beyond an established threshold, the project may cause a significant transportation impact.

The Governor’s Office of Planning and Research (OPR) developed guidance for implementation of SB 743. However, CEQA allows lead agencies the ability to provide their own methodologies and significance thresholds for CEQA technical studies. Tulare County adopted its SB 743 Guidelines document (which can be found at: <https://tularecounty.ca.gov/rma/rma-documents/planning-documents/tulare-county-sb-743-guidelines-final/>) on August 11, 2020. The County’s SB 743 Guidelines contains its own methodologies and significance thresholds based on the guidance provided by OPR, but they also include clarifications and details tailored for and specific to local conditions in Tulare County. As contained in the County’s SB 743 Guideline, the County of Tulare has determined government facilities intended to serve the local public are presumed to have a less than significant impact on VMT (County of Tulare, 2020).

The proposed Project will generate short-term, temporary, and intermittent traffic during construction-related activities. Once construction-related activities are completed, the Project would generate routine/typical traffic for maintenance or other operations-related trips by the existing staff who regularly monitor the operations of OPUD’s and EOPUD’s infrastructure. Therefore, the proposed Project will have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.17c – Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

The proposed Project would not introduce new curves and/or hazardous intersections into the proposed Project area. All roads surrounding the Project sites are straight and set in a grid pattern. No new design or features would be introduced that would result in transportation-related hazards or safety concerns. The proposed Project does not consist of any elements that would add a geometric design feature that would substantially increase hazards or have incompatible uses (e.g., farm equipment). The majority of the proposed Project's components (i.e., pipelines) will be installed underground except for the new well and new the storage tank along with the accessory infrastructure (i.e. booster pumps, chlorination facility, water meters, etc.). Therefore, the proposed Project impacts would be less than significant.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.17d – Result in inadequate emergency access?**

The proposed Project will require earth-moving activities in order to excavate the new well, install the new storage tank, install new pipelines, remove old pipelines, etc. Although this may result in open trenches in front of properties, work will be staged to allow emergency vehicles to have access to all properties. The construction team will backfill trenches as they move or will use steel plates to allow access to all properties during construction-related activities that may impede the ability to access roadways. Therefore, the Project will have a less than significant impact on emergency access.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.18 - TRIBAL CULTURAL RESOURCES**

Would the Project:

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

(ii) A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

**Would the Project:**

**Impact #3.4.18a(i) – Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is – listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?**

The Native American Heritage Commission (NAHC) was contacted with a request that they conduct a sacred lands files search. The NAHC provided the results of its search dated January 13, 2021, indicating negative results. The following Native American tribes were contacted on January 13, 2021, in order to solicit their interest regarding tribal consultation: Big Sandy Rancheria of Western Mono Indians, Dunlap Band of Mono Indians, Kern Valley Indian Community, Santa Rosa Rancheria Tachi Yokut Tribe, Tubatulabals of Kern Valley, Tule River Indian Tribe, and Wuksache Indian Tribe/Eshom Valley Band. No responses have been received to date (see Appendix D).

Considering the Project site is located within areas where tribal resources may occur, mitigation measures have been included as an abundance of caution and in the unlikely event that subsurface resources are discovered. Therefore, impacts are considered less than significant with mitigation incorporated.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures CUL-1 and CUL-2.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.18a(ii) – Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is – a resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe?**

See discussion for Impacts #3.4.5a through #3.4.5c and Impact #3.4.18a(i).

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures CUL-1 and CUL-2.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated.*

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.19 - UTILITIES AND SERVICE SYSTEMS**

Would the Project:

- |  |                          |                                     |                                     |                                     |
|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b. Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e. Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCS D; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCS D; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCS D) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCS D wells will occur.

**Would the Project:**

**Impact #3.4.19a – Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

The proposed Project will replace the current (existing) water distribution system pipeline within the community of East Orosi with 9,450 linear feet of PVC (plastic) pipeline. There will be approximately 3,050 linear feet of 10-inch pipeline connecting the wellsite to OPUD. There will be approximately 6,700 linear feet of 8-inch pipeline connecting OPUD to EOCSD. The installation of the new well and new storage tank is to provide the community of East Orosi a clean, reliable water source and will not result in an increase in water demand. As noted earlier, the intent of the project is to replace unreliable, obsolete, and antiquated wells and water distribution system with a contaminant free, reliable, and modern, new well and water distribution system. All storm water will be mitigated through implementation of Linear Underground/Overhead Projects (LUP) SWPPP guidelines, as noted in the earlier Hydrology and Water Quality section of this MND. Therefore, the proposed Project will have a less than significant impact with implementation of Mitigation Measure HYD-1, as applicable.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measure HYD-1.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant with mitigation incorporated*.

**Impact #3.4.19b – Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?**

As discussed in Impact Section 3.4.10b, and shown in Table 3.4.10-1, the estimated water demand would not substantially change from existing use and would combine the OPUD and EOCSD service areas together. The new supply well will be connected to a deeper aquifer and is intended to provide clean (that is, contaminant free water), reliable, potable water to serve the Project area's water users. Although there are several empty lots in the Project area, this Project is to replace and enhance/improve the capability, reliability, and quality of water supply and distribution for East Orosi's existing water users. As such, there is no intent to expand service or increase the number of connections of water service. Generally, the proposed Project is to replace the existing infrastructure including a new storage water tank. The proposed Project is not contributing to future development in the area. The supply well is anticipated to be deep enough to continually and reliably supply the area during normal, dry, and multiple dry years. As such, the new well (and other components of the Project) is anticipated to have the capacity and capability to supply the Project area with reliable,

potable water for future years. Therefore, the proposed Project will have a less than significant impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

Impacts would be *less than significant*.

**Impact #3.4.19c – Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project’s projected demand in addition to the provider’s existing commitments?**

The proposed Project’s new (replacement) water distribution pipelines will be separate from the wastewater system and will not be adding or connecting to the wastewater pipelines. The proposed Project will not be expanding the service requirements to the local wastewater system that would lead to a determination by the wastewater provider for capacity requirements to the area. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.19d – Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**

Solid waste generated from the communities of Orosi and East Orosi are disposed at the Visalia Landfill, which is located at 8614 Avenue 328 (Tulare County Resource Management Agency, 2017). This proposed Project would generate solid waste from construction-related activities as a result of site preparation for the new supply well and new storage tank. All solid waste will be collected and removed from the sites and will be disposed of at the Visalia Landfill (which is located approximately 19.1 miles south of the proposed Project area). The Visalia landfill has an estimated maximum permitted capacity of 18,630,666 tons and a remaining capacity of 14,815,501 tons (CalRecycle, 2023). The proposed Project will comply with State and local standards by picking up and properly disposing of any proposed Project-related solid waste. The proposed Project is not expected to result in excessive amounts of solid waste that would be in excess of State or local standards or be in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Any proposed Project-related solid waste will be disposed of following State and local standards. Therefore, the proposed Project will have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.19e – Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?**

See discussion for Impact #3.4.19d.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.20 - WILDFIRE**

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentration from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Oroshi and then connecting a new pipeline to the new storage tank in East Oroshi; and 5) consolidate the East Oroshi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Oroshi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur. The CAL FIRE website was relied upon for the following wildfire impact discussions (CALFIRE, 2023).

**Impact #3.4.20– If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project:**

**a) Substantially impair an adopted emergency response plan or emergency evacuation plan?**

Per the CAL FIRE designates all of Oroshi and East Oroshi as other unzoned and Local Responsibility Area (LRA) (CALFIRE, 2023). The nearest high severity zone is approximately 1.75 miles located northeast of East Oroshi.

The Project will not impair the County's Strategic Plan and Emergency Operations Plan, and other guidance as identified in the General Plan (Tulare County, 2020).

The proposed Project would not impair with an adopted emergency response plan or emergency evacuation plan. See also the response to Impact #3.4.9f. Therefore, the proposed Project would have result in no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.20b –**

**b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentration from a wildfire or the uncontrolled spread of a wildfire?**

The proposed Project is not located in a high fire hazard severity zone, see Impact #3.4.20a. The area is flat with no slopes and there are no prevailing winds or other factors in the proposed Project area that would exacerbate wildfire risks exposing occupants to pollutant concentration from a wildfire or the uncontrolled spread of a wildfire. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.20c –**

**c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

The proposed Project is not located in or near an SRA or lands classified as very high fire hazard severity zone, see Impact #3.4.20a, above. The proposed Project would not require the installation or maintenance of associated infrastructure (roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Therefore, the proposed Project will have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

**Impact #3.4.20d –**

**d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

The proposed Project is not located in or near an SRA or lands classified as very high fire hazard severity zone, see Impact #3.4.20a. The proposed Project will be replacing the existing underground water distribution pipeline and constructing a new supply well and a storage tank. It is not expected that such activities would result in a fire hazard or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage change. Therefore, the proposed Project would have no impact.

**MITIGATION MEASURE(S)**

No mitigation is required.

**LEVEL OF SIGNIFICANCE**

The Project would result in *no impact*.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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**3.4.21 - MANDATORY FINDINGS OF SIGNIFICANCE**

- |   |                          |                                     |                          |                          |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a. Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the Project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Discussion**

The proposed Project will have major five components: (1) installation of a new well located in the OPUD; (2) installation of a new 300,000-gallon storage tank located in the EOCSD; (3) replacement of the old (existing) asbestos-containing concrete-covered distribution pipeline which is also located in the EOCSD; (4) connection of a new pipeline from the new well to existing pipelines in Orosi and then connecting a new pipeline to the new storage tank in East Orosi; and 5) consolidate the East Orosi Community Service District (EOCSD) drinking water customers and the Family Education Center into the Orosi Public Utility District (OPUD). Other components include the installation of new water meter boxes, fire hydrants and new booster pumps for the new storage tank and new well, additionally, the capping of both EOCSD wells will occur.

**Impact #3.4.21a – Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or**

wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

As evaluated in this IS/MND, the proposed Project is not anticipated to result in or substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory. With implementation of mitigation measures, the proposed Project would not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Therefore, the proposed Project would have a less than significant impact with implementation of mitigation measures, as applicable.

**MITIGATION MEASURE(S)**

Mitigation Measures BIO-1 through BIO-6 and CUL-1 through CUL-2.

**LEVEL OF SIGNIFICANCE**

The Project would have a *less than significant impact with mitigation incorporated*.

**Impact #3.4.21b - Does the Project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are significant when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)?**

As noted earlier, the Project’s impacts will be short-term, temporary, and intermittent during construction-related activities and below significant levels during operation/maintenance-related activities. As described in the impact analyses in Sections 3.4.1 through 3.4.20 of this IS/MND, potentially significant impacts of the proposed Project would be reduced to a less than significant level following implementation of the mitigation measures listed in Section 4, *Mitigation, Monitoring and Reporting Program*, as applicable. Previously completed projects have also implemented mitigation as necessary. Accordingly, the proposed Project would not otherwise combine with impacts of related development to add considerably to any cumulative impacts in the region. With mitigation, the proposed Project would not have impacts that are individually limited but cumulatively considerable. Therefore, the proposed Project would have a less than cumulatively considerable impact with implementation of mitigation measures, as applicable.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures AES-1, BIO-1 through BIO-6, CUL-1 through CUL-2, GEO-1 through GEO-3, HAZ-1, and HYD-1 through HYD-3.

**LEVEL OF SIGNIFICANCE**

The Project would have a *less than significant impact with mitigation incorporated*.

**Impact #3.4.21c - Does the Project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?**

All of the proposed Project's impacts, both direct and indirect, that are attributable to the Project were identified and will be mitigated, as applicable. As shown in Section 4, *Mitigation, Monitoring and Reporting Program (MMRP)*, the project proponent is aware of the significance of implementing the mitigation measures contained in the MMRP, as applicable, to substantially reduce, minimize, or eliminate impacts resulting from the proposed Project. Therefore, the proposed Project would not either directly or indirectly cause substantial adverse effects on human beings because all potentially adverse direct impacts of the proposed Project are identified as having no impact, less than significant impact, or less than significant impact with implementation of mitigation measures.

**MITIGATION MEASURE(S)**

Implementation of Mitigation Measures AES-1, BIO-1 through BIO-6, CUL-1 through CUL-2, GEO-1 through GEO-2, HAZ-1, and HYD-1 through HYD-3.

**LEVEL OF SIGNIFICANCE**

The Project would have a *less than significant impact with mitigation incorporated*.

**SECTION 4 - MITIGATION, MONITORING AND REPORTING PLAN**

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
<b>Aesthetics</b>					
#1	<b>AES-1 Lighting:</b> Any Project lights shall be designed to ensure all lighting will be directed downward and shielded to focus illumination on the desired work areas only and prevent light spillage onto adjacent properties.	Ongoing	Lead Agency		
<b>Steps to Compliance:</b> A. The Lead Agency shall verify compliance.					
<b>Agriculture and Forest Resources</b>					
No Mitigation required.					
<b>Air Quality</b>					
No Mitigation required.					
<b>Biological Resources</b>					
#2	<p><b>BIO-1 Pre-Construction Survey(s) for San Joaquin Kit Fox:</b> Prior to ground-disturbing activities, a qualified wildlife biologist shall conduct a biological clearance survey within the Project area between 14 and 30 calendar days prior to the onset of construction. The clearance survey shall include walking transects to identify presence of San Joaquin kit fox, nesting birds, and other special-status species or their sign. The preconstruction survey shall be walked by no greater than 30-foot transects for 100 percent coverage of the Project site and the 50-foot buffer, where feasible. A report outlining the results of the survey shall be submitted to the Lead Agency.</p> <p>Potential kit fox dens may be excavated provided that the following conditions are satisfied: (1) the den has been monitored for at least five consecutive days and is deemed unoccupied by a qualified biologist; and (2) the excavation is conducted by or under the direct supervision of a qualified biologist. Den monitoring and excavation should be conducted in accordance with the Standardized</p>	Between 14 and 30 days prior to any ground disturbing activities.	Lead Agency, Qualified Biologist; U.S. Fish and Wildlife Service, if necessary; and California Department of Fish and Wildlife if necessary.		
<b>Steps to Compliance:</b> A. A qualified biologist shall be responsible for a preconstruction survey. B. If necessary, the qualified biologist shall contact CDFW and USFWS to determine next steps. C. If necessary, the qualified biologist shall implement next steps in consultation with the wildlife agencies. D. The qualified biologist shall prepare a brief report to be submitted to the wildlife agencies within 5 days of completion of the preconstruction survey. E. Lead Agency shall verify compliance.					

<b>Mitigation Monitoring Program</b>					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. Occupied dens shall not be excavated but must be avoided by a buffer of 100 feet, or 250 feet if pups are present.				
<b>#3</b>	<p><b>BIO-2 Training/Awareness/Education for Special Status Species:</b> Prior to Project ground-disturbance activities, or within one week of being deployed for newly hired workers, all construction workers shall attend a Construction Worker Environmental Awareness Training and Education Program, developed and presented by a qualified biologist.</p> <p>The Construction Worker Environmental Awareness Training and Education Program shall be presented by the biologist and shall include information on the life history of wildlife and plant species that may be encountered during construction activities, their legal protections, the definition of “take” under the Endangered Species Act, measures the Project operator is implementing to protect the species, reporting requirements, specific measures that each worker must employ to avoid take of the species, and penalties for violation of the Act. Identification and information regarding special-status or other sensitive species with the potential to occur on the Project site shall also be provided to construction personnel. The program shall include:</p> <ul style="list-style-type: none"> <li>• An acknowledgement form signed by each worker indicating that environmental training has been completed.</li> <li>• A copy of the training transcript and/or training video/CD, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be maintain onsite for the duration of construction activities.</li> </ul>	<p>Prior to ground-disturbing activities and within one week of being deployed for newly hired workers.</p>	<p>Qualified biologist, Project contractors</p>		
		<p><b>Steps to Compliance:</b></p> <ul style="list-style-type: none"> <li>A. The Project proponent shall ensure all construction workers complete the Worker Environmental Awareness Training program, which shall be viewed prior to construction.</li> <li>B. Copy of training as well as names of the personnel who attended shall be maintained onsite.</li> <li>C. The Lead Agency shall verify compliance.</li> </ul>			

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
#4	<p><b>BIO-3 Minimization for Swainson’s Hawk:</b> The following measures shall be implemented to reduce potential impacts to Swainson’s hawk: Nesting surveys for the Swainson’s hawks shall be conducted in accordance with the protocol outlined in the Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley (Swainson’s Hawk Technical Advisory Committee, 2000). If potential Swainson’s hawk nests or nesting substrates are located within 0.5 mile of the Project area, then those nests or substrates must be monitored for activity on a routine and repeating basis throughout the breeding season, or until Swainson’s hawks or other raptor species are verified to be using them. The protocol recommends that the following visits be made to each nest or nesting site:</p> <ul style="list-style-type: none"> <li>• One visit during January 1–March 20 to identify potential nest sites</li> <li>• Three visits during March 20–April 5</li> <li>• Three visits during April 5–April 20</li> <li>• Three visits during June 10–July 30</li> </ul> <p>A fewer number of visits may be permissible if deemed adequate by the County after consultation with a qualified biologist. To meet the minimum level of protection for the species, surveys shall be completed for at least the two survey periods immediately prior to Project-related ground-disturbance activities. If Swainson's hawks are not found to nest within the survey area, then no further action is warranted. No surveys are required if all construction work will occur during the non-breeding season (September 30 to February 15).</p>	Before construction if initiated during Swainson Hawk breeding season (February 16 to September 29)	Lead Agency, qualified biologist		
<p><b>Steps to Compliance:</b></p> <ul style="list-style-type: none"> <li>A. A qualified biologist shall be responsible for a preconstruction survey if construction is to occur during Swainson Hawk breeding season (February 16 – September 29).</li> <li>B. The measures listed are to be followed if potential nests are identified during the preconstruction survey.</li> <li>C. A pre-construction survey shall be sent to the Lead Agency.</li> </ul>					

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	If Swainson’s hawks are found to nest within the survey area, active Swainson’s hawk nests shall be avoided by 0.5 mile during the nesting period, unless this avoidance buffer is reduced through consultation with the CDFW and/or a qualified biologist with expertise in Swainson’s hawk issues. If a construction-related activities area occurs within this nesting site, construction-related activities must be delayed until the young have fledged (left the nest). The 2,500-foot radius no-construction zone may be reduced in size but in no case shall be reduced to less than 500 feet except where a qualified biologist concludes that a smaller buffer area is sufficiently protective. A qualified biologist must conduct construction monitoring on a daily basis, inspect the nest on a daily basis, and ensure that construction-related activities do not disrupt breeding behaviors				
#5	<b>BIO-4 Pre-Construction Survey for Burrowing Owl:</b> A qualified biologist shall conduct a preconstruction survey on the Project site and within 500 feet of its perimeter, where feasible, to identify the presence of the western burrowing owl. The survey shall be conducted between 14 and 30 days prior to the start of construction activities. If any burrowing owl burrows are observed during the preconstruction survey, avoidance measures shall be consistent with those included in the CDFW’s staff report on burrowing owl mitigation (CDFW, 2012). If occupied burrowing owl burrows are observed outside of the breeding season (September 1 through January 31) and within 250 feet of proposed construction activities, a passive relocation effort may be instituted in accordance with the guidelines established by the California Burrowing Owl Consortium (1993) and the California Department of Fish and Wildlife (2012). During the breeding season (February 1 through August 31), a 500-foot (minimum) buffer zone should be maintained unless a qualified biologist verifies through non-invasive methods that either the birds	14 to 30 days before construction if initiated during Burrowing Owl nesting season (February 1 to August 31)	Project proponent, qualified biologist		
		<b>Steps to Compliance:</b> <ul style="list-style-type: none"> <li>A. A preconstruction survey shall be conducted within 14 to 30 days prior to the start of construction.</li> <li>B. If active nests are found during the survey or at any time during construction of the Project, the listed measures shall be followed.</li> <li>C. Work is to continue under approval and guidance of qualified biologist.</li> </ul>			

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>have not begun egg laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.</p> <p>If burrowing owls are found to occupy the Project site and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited, and after the burrow is confirmed empty through non-invasive methods (surveillance). Replacement or occupied burrows shall consist of artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1). Ongoing surveillance of the Project site during construction activities shall occur at a rate sufficient to detect burrowing owl, if they return.</p>				
#6	<p><b>BIO-5 Avoidance/Minimization Raptors and Migratory Birds:</b> If construction is planned outside the nesting period for raptors (other than the Swainson’s hawk and western burrowing owl) and migratory birds, no action shall be required. The nesting period for migratory birds and raptors is generally accepted to be from February 15 to August 31. If construction is planned during the nesting season for migratory birds and raptors, a preconstruction survey to identify active bird nests shall be conducted by a qualified biologist to evaluate the site and a 250-foot buffer for migratory birds and a 500-foot buffer for raptors. If nesting birds are identified during the survey, active raptor nests shall be avoided by 500 feet and all other migratory bird nests shall be avoided by 250 feet. Avoidance buffers may be reduced if a qualified onsite monitor determines that encroachment into the buffer area is not affecting nest building, the rearing of young, or otherwise affecting the breeding behaviors of the resident birds. Because nesting birds can establish new nests or produce a second or even third clutch at any</p>	<p>Before construction if initiated during nesting season (February 15 to August 31)</p>	<p>Qualified biologist, Lead Agency</p>		
		<p><b>Steps to Compliance</b></p> <ul style="list-style-type: none"> <li>A. A qualified biologist shall be responsible for a preconstruction survey if construction is initiated during nesting season (February 15 to August 31).</li> <li>B. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer between 250 feet and 500 feet may be required, with the avoidance buffer from any specific nest being determined by the qualified biologist.</li> <li>C. Work is to continue under approval and guidance of qualified biologist.</li> </ul>			

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>time during the nesting season, nesting bird surveys shall be repeated every 30 days when construction activities are occurring throughout the nesting season.</p> <p>No construction or earth-moving activity shall occur within a non-disturbance buffer until it is determined by a qualified biologist that the young have fledged (left the nest) and have attained sufficient flight skills to avoid Project construction areas. Once the migratory birds or raptors have completed nesting and young have fledged, disturbance buffers will no longer be needed and can be removed, and monitoring can cease.</p>				
#7	<p><b>BIO-6 Best Management Practices:</b> During all construction-related activities, the following Best Management Practices shall be implemented:</p> <ul style="list-style-type: none"> <li>a. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.</li> <li>b. Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds should not exceed 20 miles per hour (mph) within the Project site.</li> <li>c. To prevent inadvertent entrapment of kit fox or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such</li> </ul>	All phases	Lead Agency, Project operators, contractors, qualified biologist		
		<p><b>Steps to Compliance:</b></p> <ul style="list-style-type: none"> <li>A. The measures listed are to be followed while Project is implemented.</li> </ul>			

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If at any time an entrapped or injured kit fox is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.</p> <p>d. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.</p> <p>e. No pets, such as dogs or cats, shall be permitted on the Project sites to prevent harassment, mortality of kit foxes, or destruction of dens.</p> <p>f. Use of anti-coagulant rodenticides and herbicides in Project areas shall be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds shall observe label and other</p>				

Mitigation Monitoring Program					
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	<p>restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to kit foxes.</p> <p>g. A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.</p> <p>h. The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.</p> <p>i. All sightings of the San Joaquin kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the Service at the address below.</p>				

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
<b>Impact</b>	<b>Mitigation Measure</b>	<b>Time Frame for Implementation</b>	<b>Responsible Monitoring Agency</b>	<b>Date</b>	<b>Initials</b>
	j. Any Project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone (916) 414-6620 or (916) 414-6600.				
<b>Cultural Resources</b>					
<b>#8</b>	<b>CUL-1 Encountering Cultural Materials:</b> If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from Project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation. Implementation of the mitigation measure below would ensure that the proposed Project would not cause a substantial adverse change in the significance of a historical resource. Therefore, the Project would have a less than significant impact with incorporation of mitigation measures.	During construction	Project operator, Project proponent, Lead Agency		
		<b>Steps to Compliance:</b> A. If necessary, work shall cease and the project proponent shall retain a qualified archaeologist and/or paleontologist to assess finds and recommended procedures. B. The qualified cultural resources specialist shall assess the significance of the find and determine next steps. C. The Lead Agency shall verify compliance.			
<b>#9</b>	<b>MM CUL-2 Discovery of Human Remains:</b> If human remains are discovered during construction or operational activities, further	During construction and operational activities	Project Operator, Lead Agency		

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
<b>Impact</b>	<b>Mitigation Measure</b>	<b>Time Frame for Implementation</b>	<b>Responsible Monitoring Agency</b>	<b>Date</b>	<b>Initials</b>
	excavation or disturbance shall be prohibited pursuant to Section 7050.5 of the California Health and Safety Code. The specific protocol, guidelines, and channels of communication outlined by the Native American Heritage Commission, in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the Public Resources Code (Chapter 1492, Statutes of 1982, Senate Bill 297), and Senate Bill 447 (Chapter 44, Statutes of 1987), shall be followed. Section 7050.5(c) shall guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the County Coroner.	<ul style="list-style-type: none"> <li>A. If necessary, work shall cease and the project proponent shall retain a qualified archaeologist to assess finds and recommended procedures.</li> <li>B. The qualified cultural resources specialist shall assess the significance of the find and determine next steps.</li> <li>C. The Lead Agency shall verify compliance.</li> </ul>			
<b>Energy</b>					
	No Mitigation required.				
<b>Geology and Soils</b>					
<b>#8</b>	<p><b>GEO-1 Vegetation Removal and Earthmoving Activities:</b></p> <ul style="list-style-type: none"> <li>a. The areas of proposed improvements shall be cleared of surface vegetation and debris. Materials resulting from the clearing and stripping operations must be removed and properly disposed of offsite. In addition, all undocumented fills should be removed where encountered and where fills or structural improvements will be placed.</li> <li>a. Where existing utilities, inlets, or underground tanks are present, they shall be removed to a point at least two feet horizontally outside the proposed foundation areas. Resultant cavities must be backfilled with engineered fill compacted in accordance with the recommendations presented in this report.</li> <li>b. Following the stripping operations, the areas where shallow foundations are proposed must be over excavated to a</li> </ul>	All phases	Project Proponent		
		<p><b>Steps to Compliance:</b></p> <ul style="list-style-type: none"> <li>A. The measures listed are to be followed while Project is implemented.</li> </ul>			

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>minimum depth of one foot below existing site grades or one foot below the bottom of the footing elevation, whichever is deeper. Over excavation shall extend laterally three feet beyond the edge of foundations for shallow footings. After over excavation, the bottom of the exposed soil shall be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. We recommend that non-expansive soil (EI &lt; 20) be used below the bottom of shallow foundations.</p> <p>c. For ring wall tank foundations, over excavation to a minimum depth of two feet below existing site grades or two feet below the bottom of the footing elevation, whichever is deeper. Because of the expansive material (EI &gt; 20) found at the storage tank site, either low expansive (EI &lt; 20) select onsite soils or low expansive (EI &lt; 20) import engineered fill shall be placed below the ring wall foundations. Over excavation should extend laterally three feet beyond the edge of the ring wall foundations. After over excavation, the bottom of the exposed soil will be scarified eight inches, moisture conditioned to near optimum moisture content, and compacted to 90 percent of ASTM D1557. Yielding areas should be observed by the geotechnical consultant and removed and recompacted if necessary.</p> <p>d. Following the required stripping and over excavation, in the areas of proposed shallow foundations, the exposed ground surface at the bottom of the over excavation shall be inspected by a geotechnical engineer to evaluate if loose or soft zones are present that will require additional over excavation.</p>				

Mitigation Monitoring Program					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>e. Screening of oversize material shall be anticipated if native soils are planned for use as trench backfill or engineered fill.</p> <p>f. Imported soil or native excavated soils, free of organic materials or deleterious substances, may be placed as compacted engineered fill. The material will be free of oversized fragments greater than three inches in dimension. Engineered fill shall be placed in uniform layers not exceeding eight inches in loose thickness, moisture conditioned to within two to four percent above optimum moisture content, and compacted to at least 90 percent relative compaction. Engineered fill placed on fill slopes must be placed in uniform layers not exceeding eight inches in loose thickness, moisture conditioned to near optimum moisture content, and compacted to at least 90 percent of relative compaction.</p> <p>g. An engineer or geotechnical consultant must be called to the site to verify the import material properties through laboratory testing.</p> <p>h. If possible, backfill operations shall be scheduled during a dry, warm period of the year. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a “pumping” condition. This condition is caused by excess moisture in combination with moving construction equipment, resulting in saturation and zero air voids in the soils. If this condition occurs, the adverse soils will need to be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which should be</p>				

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
Impact	Mitigation Measure	Time Frame for Implementation	Responsible Monitoring Agency	Date	Initials
	<p>subject to review and approval by the engineer or geotechnical consultant prior to implementation.</p> <p>i. Import fill materials will be free from organic materials or deleterious substances. The Project specifications must require the contractor to contact engineer or geotechnical consultant to review the proposed import fill materials for conformance with these recommendations at least one week prior to importing to the site, whether from onsite or offsite borrow areas. Imported fill soils must be non-hazardous and derived from a single, consistent soil type source conforming to the following criteria:</p> <ul style="list-style-type: none"> <li>• Plasticity Index: &lt; 12</li> <li>• Expansion Index: &lt; 20 (Very Low Expansion Potential)</li> <li>• Maximum Particle Size: three inches</li> <li>• Percent Passing #4 Sieve: 65–100</li> <li>• Percent Passing #200 Sieve: 20– 45</li> <li>• Low Corrosion Potential: Soluble Sulfates &lt; 1,500 ppm</li> <li>• Soluble Chlorides &lt; 150 ppm</li> <li>• Minimum Resistivity &gt; 3,000 ohm-cm</li> </ul>				
#9	<p><b>GEO-2 Paleontological Resources:</b> If any paleontological resources are encountered during ground-disturbance activities, all work within 25 feet of the find shall halt until a qualified paleontologist as defined by the Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), can evaluate the find and make recommendations regarding treatment. Paleontological resource materials may include resources such as fossils, plant impressions, or animal tracks preserved in rock. The qualified paleontologist shall contact the Natural History Museum of Los Angeles County or other</p>	During ground disturbance activities	Project operator, Lead Agency		
		<p><b>Steps to Compliance:</b></p> <p>A. In the event that paleontological resources are encountered during ground disturbance activities, all work within 25 feet shall halt.</p>			

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
<b>Impact</b>	<b>Mitigation Measure</b>	<b>Time Frame for Implementation</b>	<b>Responsible Monitoring Agency</b>	<b>Date</b>	<b>Initials</b>
	<p>appropriate facility regarding any discoveries of paleontological resources.</p> <p>If the qualified paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigations and fossil recovery may be required to mitigate adverse impacts from project implementation. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, they shall be avoided to ensure no adverse effects, or such effects must be mitigated. Construction in that area shall not resume until the resource appropriate measures are recommended or the materials are determined to be less than significant. If the resource is significant and fossil recovery is the identified form of treatment, then the fossil shall be deposited in an accredited and permanent scientific institution. Copies of all correspondence and reports shall be submitted to the Lead Agency.</p>				
<b>Greenhouse Gas Emissions</b>					
No Mitigation required.					
<b>Hazardous Materials</b>					
<b>#10</b>	<p><b>HAZ-1 Hazardous Materials:</b> The Project shall submit a Hazardous Materials Business Plan. The Hazardous Materials Business Plan will be in accordance with Tulare County and the California Department of Toxic Substances Control policy and guidelines. The Materials Business Plan will contain any Acutely Hazardous Materials (AHM) that handles a minimum of 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of compressed gas or any AHM that must be included in a business plan that requires an emergency response to a</p>	Prior to Construction	Project proponent, Lead Agency		
		<p><b>Steps to Compliance:</b></p> <p>A. A Hazardous Materials Business Plan shall be submitted and approved by the responsible agency.</p> <p>B. The Lead Agency shall verify compliance with the mitigation measure.</p>			

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
<b>Impact</b>	<b>Mitigation Measure</b>	<b>Time Frame for Implementation</b>	<b>Responsible Monitoring Agency</b>	<b>Date</b>	<b>Initials</b>
	possible release of hazardous materials. The Project shall comply with proper handling, labeling, accumulation, and disposal of waste.				
<b>Hydrology and Water Quality</b>					
<b>#11</b>	<p><b>HYD-1 Stormwater Pollution Prevention Plan:</b> Prior to construction, the applicant shall submit an approved copy of (1) the approved LUPs SWPPP and (2) the Notice of Intent (NOI) to comply with the General National Pollutant Discharge Elimination System (NPDES) from the Central Valley Regional Water Quality Control Board. The requirements of the Type 1 LUPs SWPPP and NPDES shall be incorporated into design specifications and construction contracts. Recommended Type 1 BMPs for the construction phase may include the following:</p> <ul style="list-style-type: none"> <li>• Soil stabilization BMPs</li> <li>• Sediment control BMPs</li> <li>• Temporary gravel construction entrance/exit</li> <li>• Run-on control</li> </ul>	Prior to construction	Project proponent, Lead Agency		
		<p><b>Steps to Compliance:</b></p> <p>A. An approved NOI to comply with NPDES and SWPPP shall be submitted to the Lead Agency to verify compliance with the mitigation measure.</p>			
<b>#12</b>	<p><b>HYD-2 Grading Plan:</b> The applicant shall limit grading to the minimum area necessary for construction and operation of the Project. Final grading plans shall include Best Management Practices to limit onsite and offsite erosion.</p>	During construction	Project proponent, Lead Agency		
		<p><b>Steps to Compliance:</b></p> <p>A. The measure listed is to be followed while Project is implemented.</p>			
<b>#13</b>	<p><b>HYD-3 Stormwater Retention:</b> The applicant shall consult with the Tulare County Public Works Department regarding the designated locations of detention basins in the Project area and the use of said basins. In the event there is not currently a basin having capacity to serve the storage tank site, the Project shall cooperate with the County to achieve adequate stormwater retention.</p>	Prior to construction	Project proponent, Lead Agency		
		<p><b>Steps to Compliance:</b></p> <p>A. The project proponent shall consult with the Tulare County Public Works Department for use of detention basin.</p>			

**Mitigation, Monitoring and Reporting Plan**

<b>Mitigation Monitoring Program</b>					
<b>Impact</b>	<b>Mitigation Measure</b>	<b>Time Frame for Implementation</b>	<b>Responsible Monitoring Agency</b>	<b>Date</b>	<b>Initials</b>
		B. The Lead Agency shall verify compliance with the mitigation measure.			
	<b>Land Use and Planning</b>				
	No Mitigation required.				
	<b>Mineral Resources</b>				
	No Mitigation required.				
	<b>Noise</b>				
	No Mitigation required.				
	<b>Population and Housing</b>				
	No Mitigation required.				
	<b>Public Services</b>				
	No Mitigation required.				
	<b>Recreation</b>				
	No Mitigation required.				
	<b>Traffic and Transportation</b>				
	No Mitigation required.				
	<b>Tribal Cultural Resources</b>				
	Implement Mitigation Measures MM CUL-1 and MM CUL-2.				
	<b>Utilities and Service Systems</b>				
	No Mitigation required.				
	<b>Wildfire</b>				
	No Mitigation required.				

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## **SECTION 5 - LIST OF PREPARERS**

This document was prepared by QK's Environmental Planning group.

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## SECTION 6 - REFERENCES

- ASM Affiliates, Inc. (2020). *Phase I Survey/Class III Inventory, East Orosi Community Services District Project*.
- BSK Associates. (2020). *Geotechnical Engineering Investigation Report*.
- Cal Fire. (2007). *Merced County Fire Hazard Severity Zones*.
- CALFIRE. (2023). *Fire Hazard Severity Zone Maps*. Retrieved from <https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008>
- California Department of Conservation. (2018). *California Farmland Mapping and Monitoring Program*. Retrieved from California Important Farmland Finder: <https://maps.conservation.ca.gov/DLRP/CIFF/>
- California Department of Toxic Substances Control. (2021). *EnviroStor*. Retrieved from [https://www.envirostor.dtsc.ca.gov/public/map/?global\\_id=54880002](https://www.envirostor.dtsc.ca.gov/public/map/?global_id=54880002)
- California Department of Toxic Substances Control. (2023). *California Department of Toxic Substances Control, Envirostor*. Retrieved from California Department of Toxic Substances Control, Envirostor: <https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Search>
- California Department of Transportation. (2018). *California State Scenic Highway Systems Map*. Retrieved from Caltrans Scenic Highways: <https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>
- California Water Board. (2018). *Attachment A Linear Underground/ Overhead Requirements*. Retrieved from [https://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo\\_2009\\_0009\\_att\\_a.pdf](https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_att_a.pdf)
- CalRecycle. (2023). *CalRecycle*. Retrieved from SWIS Facility/Site Activity Details: <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/822?siteID=3839>
- County of Tulare. (2010). *Tulare County General Plan 2030 Updated Recirculated Draft EIR*.
- County of Tulare. (2020). *County of Tulare Draft SB 743 Guidelines*.
- Kings River East Groundwater Sustainability Agency . (2019, December 13). *Groundwater Sustainability Plan* . Retrieved from Kings River East Groundwater Sustainability Agency : <file:///vs-uemfs-01.quadknopf.local/vs-uemfs-01-e/UEMdata/Samuel.Rashe/Downloads/2019-1213%20KREGSA%20Adopted.pdf>

- 
- Kings River East Groundwater Sustainability Agency. (n.d.). *Sustainable Groundwater Management Act*. Retrieved from Kings River East Groundwater Sustainability Agency: <https://kingsrivereast.org/sgma/>
- QK . (2017). *Preliminary Engineering Report, East Orosi Community Services District Water Supply And Infrastructure*.
- QK. (2020a). *Preminary Engineering Report*.
- QK. (2020b). *Biological Analysis Report, Tulare County, East Orosi Tank Project*.
- QK. (2023). *Supplement Preliminary Engineering Report, East Orosi Community Services District Water Supply and Infrastructure*.
- Spencer, W.D., et al. (2010). *California Essential Habitat Connectivity Project - A Strategy for Conserving a Connected California*. Caltrans.
- Trinity Consultants. (2019). *Demolition Emissions Memorandum*.
- Trinity Consultants. (2022). *Air Quality and Greenhouse Gas Assessment: East Orosi Water Main, East Orosi, California*.
- Tulare County. (2012). *General Plan Public Facilities and Services*.
- Tulare County. (2020, July 2). *General Plan 2030*. Retrieved from Tulare County : <http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/GENERAL%20PLAN%202012.pdf>
- Tulare County LAFCO. (2011). *Tulare County LAFCO, Group 4 Municipal Service Reviews*.
- Tulare County Resource Management Agency . (2017). *East Orosi Community Plan 2017*.
- Tulare County Resource Management Agency. (2012). *Tulare County General Plan 2030 Update*.
- Tulare County Resource Management Agency Economic Development and Planning Branch. (2022). *Cutler/Orosi Community Plan 2021 Update*.
- US Fish and Wildlife Service. (1998). *Recovery Plan for Upland Species of the San Joaquin Valley, CA*.

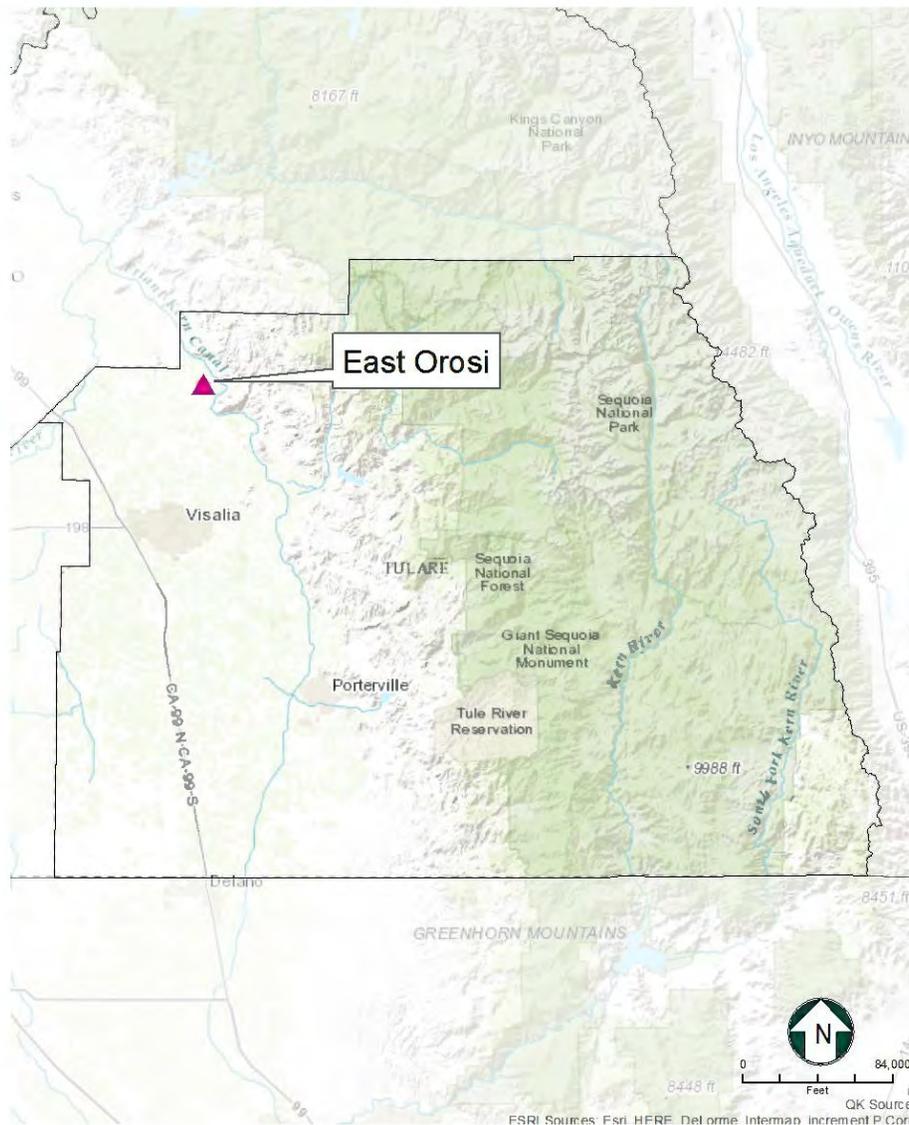
**APPENDIX A**

**PRELIMINARY ENGINEERING REPORT AND SUPPLEMENTAL PRELIMINARY ENGINEERING  
REPORT**

# PRELIMINARY ENGINEERING REPORT

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## EAST OROSI COMMUNITY SERVICES DISTRICT WATER SUPPLY AND INFRASTRUCTURE



JUNE 2017



# PRELIMINARY ENGINEERING REPORT

## WATER SUPPLY AND INFRASTRUCTURE

### Prepared for:

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Shanna Chavez, Treasurer  
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June 2017

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Project #130043



**Table of Contents**

***SECTION 1 - INTRODUCTION..... 1***

1.1 - Background ..... 1

1.2 - Purpose ..... 1

1.3 - Study Area..... 4

1.4 - Key Agencies/Organizations ..... 4

1.5 - Funding..... 4

1.6 - Schedule..... 4

***SECTION 2 - POTENTIAL PROJECT PARTICIPANTS..... 10***

2.1 - Agencies..... 10

    2.1.1 - The State Water Resources Control Board, Drinking Water Division (SWRCB, DWH)..... 10

    2.1.2 - The East Orosi Community Services District (EOCSD)..... 10

    2.1.3 - Orosi Public Utilities District (OPUD) ..... 11

    2.1.4 - Tulare County Local Agency Formation Commission (LAFCO)..... 11

***SECTION 3 - THE PROJECT AND PROJECT ALTERNATIVES..... 12***

3.1 - Project Purpose..... 12

3.2 - Issues ..... 12

3.3 - The Project..... 13

    3.3.1 - The Well ..... 13

    3.3.2 - Water Storage Facilities..... 15

    3.3.3 - Distribution System..... 15

    3.3.4 - Metering..... 17

3.4 - Project Alternatives..... 17

3.5 - Facilities Cost Comparisons ..... 18

***SECTION 4 - ALTERNATIVES RATINGS..... 21***

4.1 - Introduction ..... 21

4.2 - Ratings..... 22

    4.2.1 - Water Supply Reliability..... 22

    4.2.2 - Facilities Construction Costs..... 22

    4.2.3 - Operations and Maintenance Effectiveness..... 22

    4.2.4 - Water Rates ..... 22

    4.2.5 - Participant Willingness..... 23

    4.2.6 - Other Benefits/Constraints..... 24

***SECTION 5 - ALTERNATIVES EVALUATION SUMMARY..... 25***

**List of Figures**

Figure 1 Project Location ..... 2  
Figure 2 East Oroshi ..... 3  
Figure 3 Study Area ..... 5  
Figure 4 East Oroshi Community Services District ..... 6  
Figure 5 Aerial View, East Oroshi ..... 7  
Figure 6 Oroshi Public Utility District ..... 8  
Figure 7 Project Timeline ..... 9  
Figure 8 The Project and Project Alternatives ..... 14  
Figure 9 Storage Tank Location ..... 16  
Figure 10 Rights-of-Way, Typical ..... 20

**Appendices**

Appendix A – Water Usage and Calculation of Design Alternatives Costs  
Appendix B – LAFCO East Oroshi Community Services District Municipal Services Review  
Appendix C – SDWRCB, DDW Compliance Order NO. 03-24-15R-001; East Oroshi June 2016  
Consumer Confidence Report  
Appendix D – LAFCO Oroshi Public Utilities District Municipal Services Review  
Appendix E – Excerpts, 2014-2015 Audit, East Oroshi Community Services District  
Appendix F – Geohydrologist Report, East Oroshi Community Services District Test Well,  
Avenue 408, Tulare County  
Appendix G – LAFCO Districts Consolidation Constraints/Procedures/Restrictions  
Appendix H – Excerpts, North Tulare County Regional Surface Water Treatment Plant Study,  
2014  
Appendix I – Rate Study for East Oroshi, excerpt from November 23, 2016 Northern Tulare  
County Evaluation of Governance Structures and Affordability, prepared by  
Rural Community Assistance Corporation

# **SECTION 1 - INTRODUCTION**

## **1.1 - Background**

The community of East Orosi is located in the northeast corner of the San Joaquin Valley portion of Tulare County (Figure 1). It is depicted on Figure 2. The 2010 U.S. Census listed 495 residents in 105 dwelling units, with 41% of the households with median incomes below the Federal poverty line. (Other population estimates have ranged from 560<sup>1</sup> residents to 700<sup>2</sup> residents.) There has been little change in the community since the census. The 2011-15 U.S. Census Bureau American Community Survey 5-Year Estimate states that the Community's annual median household income was \$34,896, which is 56% of the statewide median household income, thereby qualifying East Orosi as a Severely Disadvantaged Community.

Infrastructure responsibility is divided between the County of Tulare and the East Orosi Community Services District. The County is responsible for street maintenance and storm drainage, the District for water and wastewater infrastructure. Wastewater treatment is provided by a District contract with the Cutler-Orosi Joint Powers Wastewater Authority. Orosi is located approximately one mile west of East Orosi.

East Orosi was, until January 2014, served by two District wells. These wells provided drinking water with non-compliant (nitrate) water. An attempt was made to rehabilitate one of the wells to correct the nitrate problem; difficulties in carrying out the well rehabilitation rendered the well unusable. The community is now served by only the remaining well, with its nitrate levels in the order of 50 ppm. The State Water Resources Control Board Division of Drinking Water (SWRCB, DDW) issued in November 2016, a Compliance Order requiring the District to bring the District's water system into compliance with the nitrate MCL of less than 45 ppm by December 1, 2018 (Appendix C).

The community is currently being provided with bottled drinking water by the SWRCB utilizing funding from the Proposition 84 Safe Drinking Water Emergency Funding Program and Cleanup and Abatement Account – Interim Emergency Bottled Water Project. The CAA grant agreement between the East Orosi CSD and the State is scheduled to expire, and Proposition 84, expires in October 2017. The balance of District residents' water needs are being met with water from the remaining, non-compliant, well source.

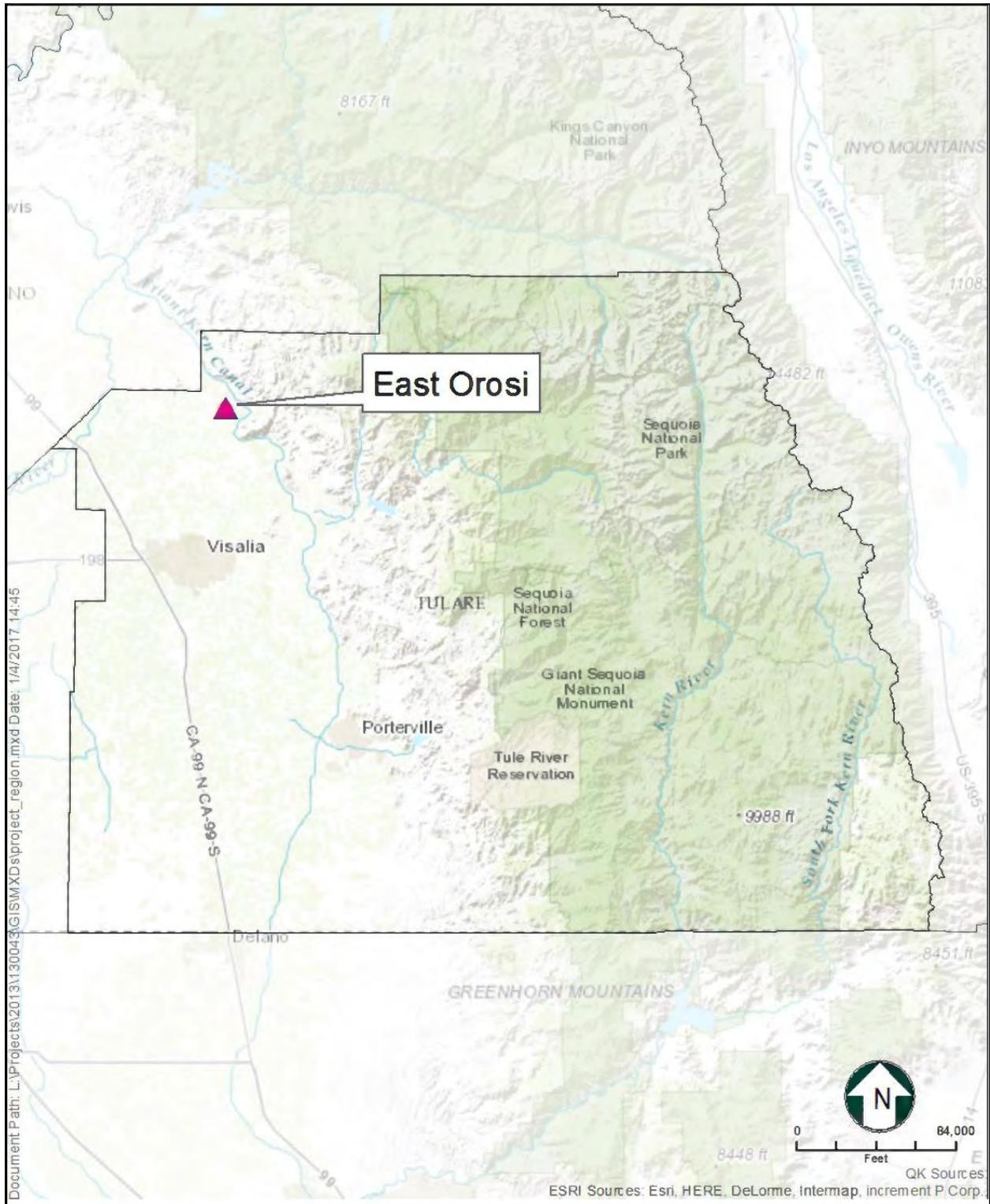
## **1.2 - Purpose**

It is the purpose of this Report to identify and evaluate the relative feasibility and costs of alternative solutions to East Orosi's water supply needs, and to enable implementation of the best solution.

---

<sup>1</sup> Appendix A, Water Usage and Calculations of Design Alternatives Costs

<sup>2</sup> Appendix B, Tulare County LAFCO Municipal Services Review, East Orosi CSD, page 5.2



**Figure 1**  
**Project Location**



**Figure 2**  
**East Orosi**

### **1.3 - Study Area**

The study area is portrayed on Figure 3. It includes the East Oroshi Community Services District, the Oroshi Public Utilities District, the location of a proposed supply well, and the rural Tulare County area surrounding the two Districts.

The proposed supply well is located approximately 2 miles southwest of East Oroshi. The selection of this wellsite was determined, after exhaustive study, as one from which an adequate and quality-compliant drinking water supply for East Oroshi could be assured. A test well which has been completed on the site confirmed the likelihood that a production well thereon could provide a compliant water supply in an amount sufficient to both meet East Oroshi's needs and, if desired, to provide a supplemental water source for Oroshi.

### **1.4 - Key Agencies/Organizations**

These agencies include:

- The project applicant, the East Oroshi Community Services District (EOCSD). The District boundaries and the community are portrayed on Figures 4 and 5.
- The Oroshi Public Utility District (OPUD) with an estimated population of 10,000. The District boundaries are portrayed on Figure 6.
- The State Water Resources Control Board Division of Drinking Water (SWRCB, DDW), a regulatory and funding agency.
- The Tulare County Local Agency Formation Commission (LAFCO) which coordinates and regulates establishment, annexation to, and consolidation of public agencies in the County.

The District is being assisted for this Project by Self Help Enterprises (SHE) a San Joaquin Valley/Visalia-based private non-profit affordable housing and community development corporation which aids local limited-income agencies in securing funding for essential infrastructure facilities.

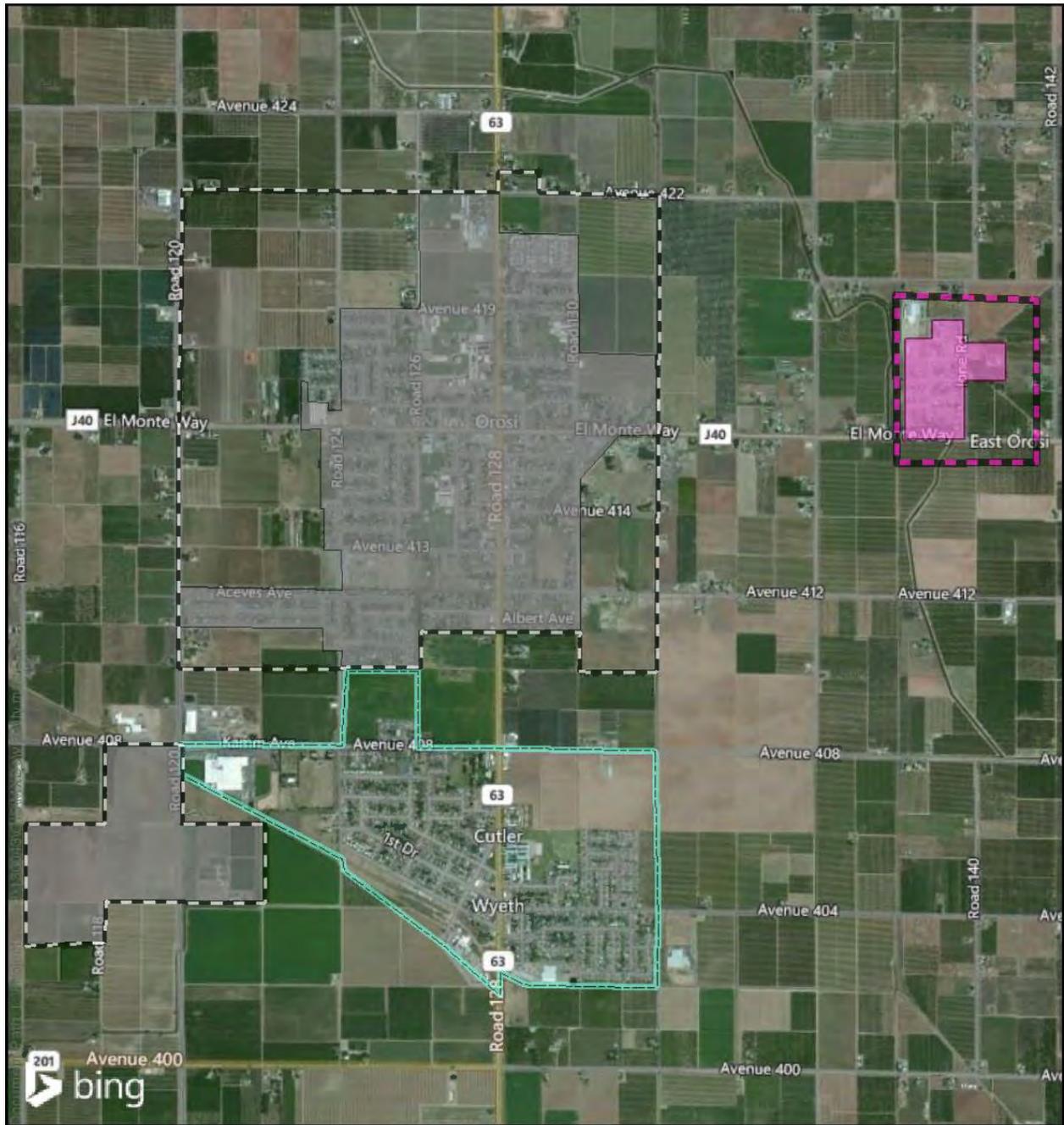
### **1.5 - Funding**

The EOCSD has no financial resources, or feasible tax or service fee-based funding ability, to improve or replace its water supply and distribution system (Appendix E).

The construction funding for this Project is to be applied for by the District from the Drinking Water State Revolving Fund/Proposition 1 program.

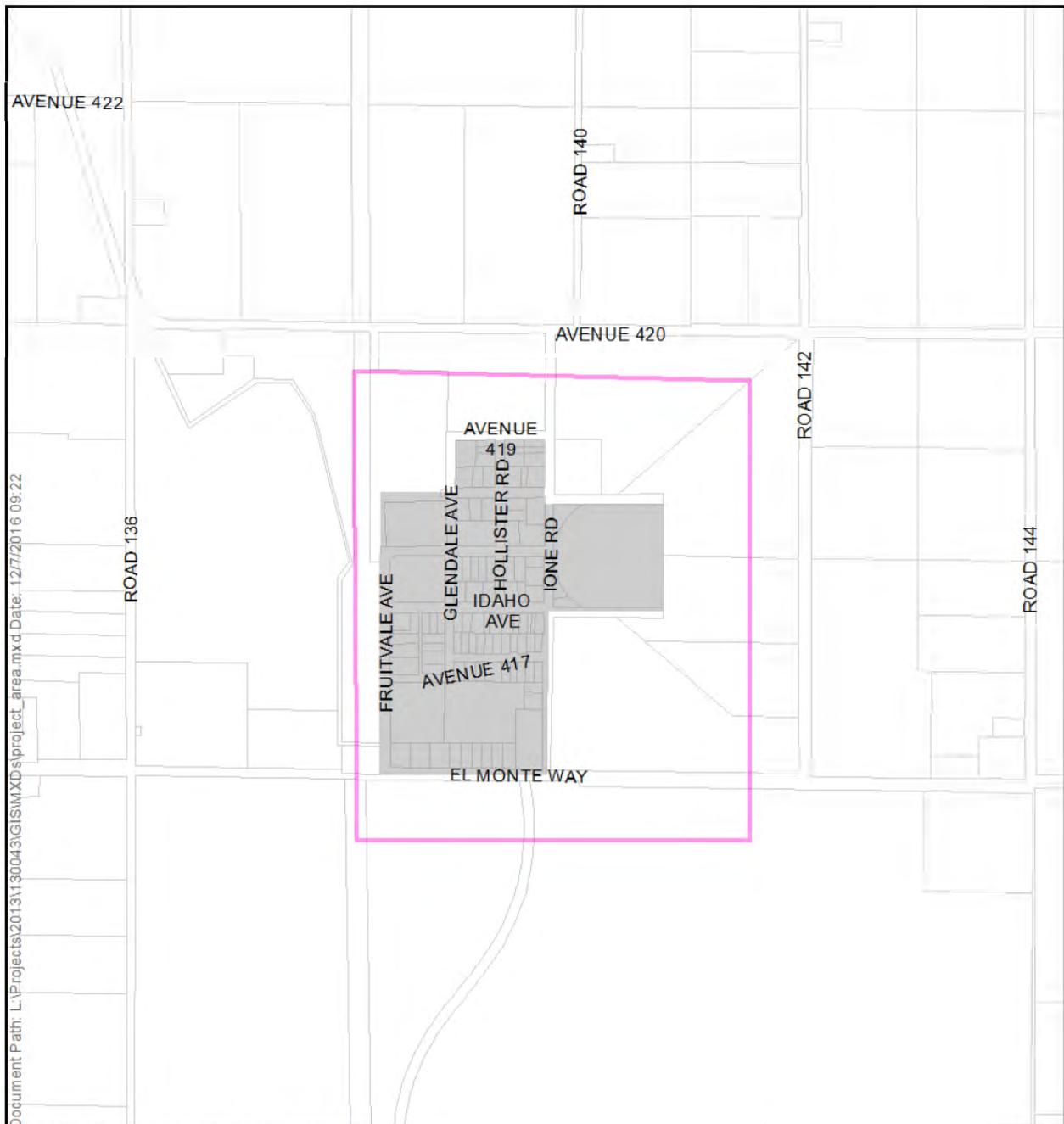
### **1.6 - Schedule**

The State requested that this PER be completed in draft format by January 15, 2017. The attached timeline (Figure 7) illustrates desired project alternatives selection, design, bid document, bid/bid award and construction time projections.



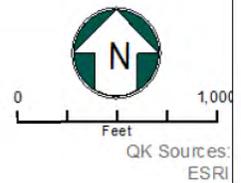
<b>East Orosi CSD</b>	<b>Orosi PUD</b>	<b>Cutler PUD</b>	  <small>QK Sources: ESRI Image courtesy of USGS Image courtesy of the Nevada State</small>
 District	 District	 Boundaries	
 Sphere of Influence	 Sphere of Influence		

 **Figure 3**  
**Study Area**



**Boundaries as of 6/30/2012**

- District
- Sphere of Influence



**Figure 4**  
**East Orsi Community Services District**



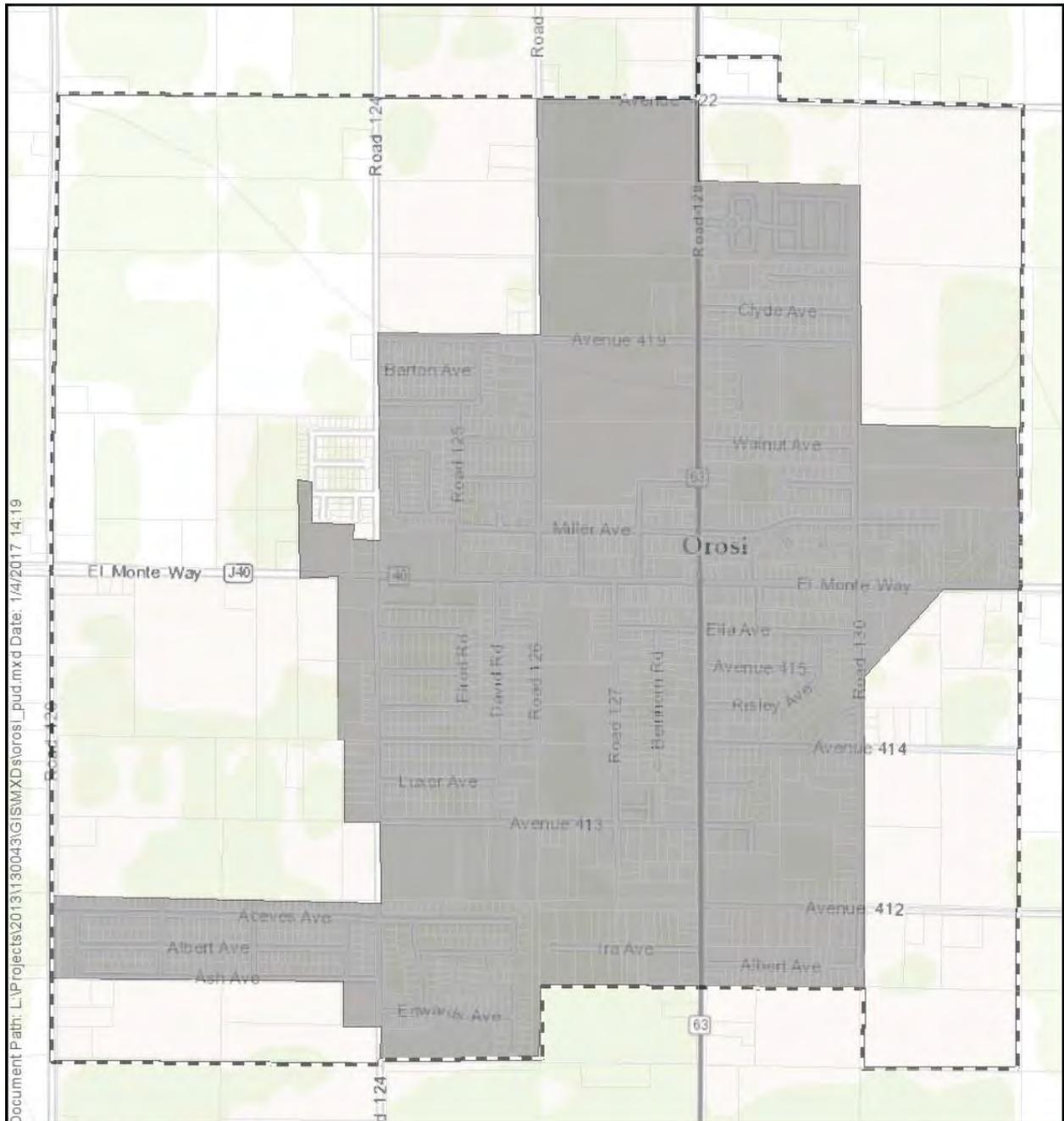
 East Orosi CSD



QK Sources: County of Tulare  
 ESRI Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

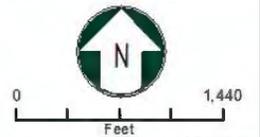


**Figure 5**  
**Aerial View, East Orosi**



**Boundaries as of 6/30/2012**

- District
- SOI



ESRI Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., QK Sources:

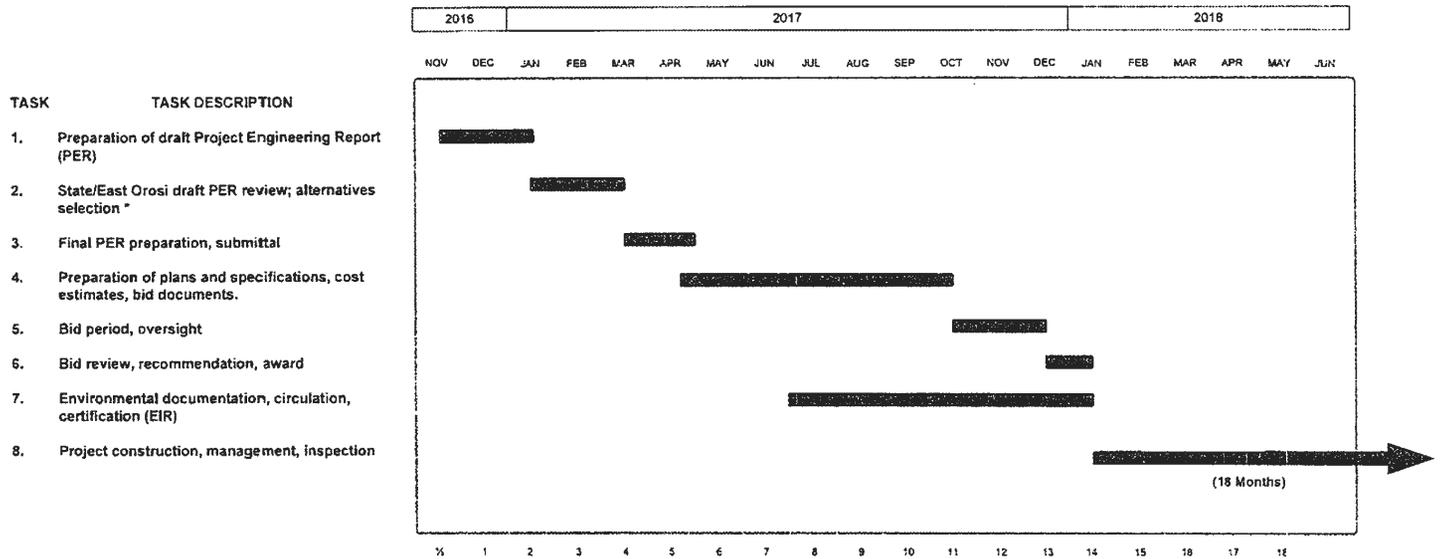


**Figure 6**  
**Orosi Public Utility District**



Figure 7  
 Project Timeline

**EAST OROSHI WATER SUPPLY PROJECT**  
*Projected Timeline, Engineering, Surveying and Environmental Services\**



## **SECTION 2 - POTENTIAL PROJECT PARTICIPANTS**

### **2.1 - Agencies**

Self Help Enterprises has assisted the East Oroshi Community Services District (EOCSD) with project funding and project management.

Critical participants in the project are the following:

#### **2.1.1 - THE STATE WATER RESOURCES CONTROL BOARD, DIVISION OF DRINKING WATER (SWRCB, DDW)**

The Division is responsible for assurance of compliance by public water systems with primary and secondary drinking water standards. It is, additionally, responsible for the evaluation, and implementation, of State funding for public water system facilities which will enable entities operating such facilities to comply with such standards.

Appendix C to this report contains the Compliance Order issued on November 9, 2015, from SWRCB to the EOCSD requiring compliance by December 1, 2018 with State Maximum Contaminant Levels (MCLs) for drinking water nitrates in the District water system, and a copy of the District's State-required June 2016, Consumer Confidence Report.

#### **2.1.2 - THE EAST OROSHI COMMUNITY SERVICES DISTRICT (EOCSD)**

The District operates and maintains both the water system and the wastewater facilities serving the community of East Oroshi.

Information regarding the community and the water system is contained in Section 1.1 of this report and in Appendices to the report.

Appendix B is a Tulare County Local Agency Formation Commission (LAFCO) Municipal Services Review, 2006, and Appendix E contains excerpts from the District's 2014-2015 Audit, EOCSD Updated.

Other information regarding the District and its water system:

- The estimates of population served by the water system range from 386 to 700 people (see Section 1.1). The population used as a basis for this report is 560 residents, based on metered total water usage.
- The District employs no full-time staff; operations and maintenance are provided by a private contractor.
- Current water rates are \$17.15 per month per system-connected service. There are old, manual-read, meters installed on a mix of ¾" and 1", poly-pipe, house connections. They are not read or routinely calibrated, and as such are not considered accurate, so are not used as a basis for billings.

- The District is now served by a single well, with 150 gpm capacity, with hydropneumatic tank and hypochlorination facilities. Until 2014, it was also served by a second well, with 150 gpm capacity. That well is now out of service following a failed rehabilitation program.
- The District has no in-community water storage facilities. It has approximately 8,900 feet of 4" and 6" PVC pipe, 101 service connections of poly-pipe with meters and meter boxes, and 11 fire hydrants (4 of which are not in full compliance with current California Fire Code location requirements).
- Reported water production in 2013-2014 was approximately 3,382,000 gallons.
- Audited year 2015 water system expenditures were \$54,000.
- The District office is a small travel trailer.
- There are no other currently reported water quality problems.

### ***2.1.3 - OROSI PUBLIC UTILITY DISTRICT (OPUD)***

The only data available for the preparation of this report is the 2006 Orosi LAFCO Municipal Services Review (MSR) in Appendix D of this report, and OPUD annual well production data from Draft 2014 North Tulare County Surface Water Treatment Plant Study excerpts in Appendix H to this report.

The current population of the 690-acre District is in the order of 10,000 people. (The 2010 census indicated a population of 8,770 people.) The Appendix H excerpts described 2012 water usage in the District as approximately 2,200,000 gallons per day produced by 5 in-District wells.

OPUD opposition to consideration of an Orosi/East Orosi District consolidation alternative discussed in this report has rendered the acquisition of further data regarding the OPUD impractical.

### ***2.1.4 - TULARE COUNTY LOCAL AGENCY FORMATION COMMISSION (LAFCO)***

The Commission's duties and legal obligations and constraints regarding consolidation of Districts are described and defined in Appendix G to this report. In brief, consolidation of Districts in the County may be initiated by applicants to LAFCO by the Districts involved or may be initiated, after a study, by the Commission.

The Commission is governed by five representatives, two of which are appointed by the Board of Supervisors, two by a committee of City representatives, and the fifth by the four County/City appointees.

## **SECTION 3 - THE PROJECT AND PROJECT ALTERNATIVES**

### **3.1 - Project Purpose**

In reiteration of the Project purpose as stated in Section 1: It is the purpose of this Report to identify and evaluate the relative feasibility and costs of alternative solutions to East Orosi's water supply needs, and to enable implementation of the best solution.

The community has for some years suffered from service by a water supply system which has not been in compliance with health-related State drinking water standards, and from less than adequate financial and staffing resources to properly operate and maintain its water system. Since January 2014, it has not had a backup water supply because of the failure of one of its two wells. The fulfillment of the project purpose will resolve these concerns.

### **3.2 - Issues**

- Financial

The adequacy and continued availability of Federal and State funding is essential to implementation of the Project purpose. There is no possibility of local financing; the District's residents cannot fund the needed facilities. There is no possibility of funding by the County of Tulare or of private, eleemosynary, funding.

- Governmental

The participation, at some alternative level, of the OPUD (because of adjacency and financial and operational capability) in implementation of adequate EOCSD water supply facilities would be of value. Absent such participation, pipeline connection costs to the new well would be increased, storage facilities in East Orosi would be required, and there would be no "backup" drinking water-compliant water supply.

- Operation and Maintenance

Almost equally important, it will be financially difficult for East Orosi to operate and maintain upgraded project facilities. They must be operated and maintained by trained and licensed personnel, to read meters, bill for services, operate and repair facilities, maintain financial stability and test for and submit records of system compliance.

It is conceivable that EOCSD could continue to contract for management, operating and maintenance services with a private company. However, the expense of such contractual services would probably be greater than the equitable expense-sharing cost of incremental services by OPUD. Orosi, with a services scenario, could benefit from the backup available from a high-volume Project well and an Orosi-system connector; a lower-cost, low-volume well would be sufficient for East Orosi's needs.

EOCSD is too small and possesses limited financial resources to provide a reliable and safe water supply to its citizens absent long-term financial assistance or, most feasibly, a contractual or consolidation relationship with OPUD.

- **Timing**

East Orosi, at this juncture, remains served by only one well which produces non-compliant (nitrates) water. It has no storage facilities. Residents are being provided bottled water. It is evident that accelerating Project completion is a critical issue. Drought-related delays in well construction, prolonged State/Orosi negotiations or other delays would be a public health concern.

Funding shortages or modifications with a changed Federal administration could, with excessive project delays, also be a project timing issue, given potential resulting additional claims upon State funding programs.

### **3.3 - The Project**

The Project has four components – a well which will supply drinking water-compliant water, a piping connection from that well to East Orosi with any required water storage facilities, replacement of any inadequate segments of the East Orosi distribution system used to implement this project and the installation of remote-read meters on each service connection.

#### **3.3.1 - THE WELL**

A comprehensive review of alternative sites for the Project well was undertaken by a hydrogeologist and engineers familiar with the East Orosi vicinity. Most of the area immediately adjacent to East Orosi was identified as underlain by aquifers with nitrate or DBCP contaminants. It was determined that the only, albeit distant and limited size, area from which it was likely that drinking water-compliant water could be produced was in a narrow geographic band southwest of the community. A tentatively selected, and now test-well confirmed, wellsite east of the northeast corner of the intersection of State Route 43 and Avenue 408 (Figure 8) has been provisionally acquired (optioned).

The wellsite is located on property owned by the Cutler-Orosi Joint Unified School District. It is located on the north side of Avenue 408 and is of State regulation-compliant size, 108 ft. by 122 ft. Between the wellsite and State Highway 43 the School District has a well supply for its onsite offices which supplies these facilities with compliant drinking water including nitrate levels less than 45 ppm.

There are no other major wells adjacent to the wellsite. Approximately 700 to 1,300 feet east of the site there is a cluster of eight rural homes fronting on Avenue 408. These homes are currently supplied with water from individual wells.

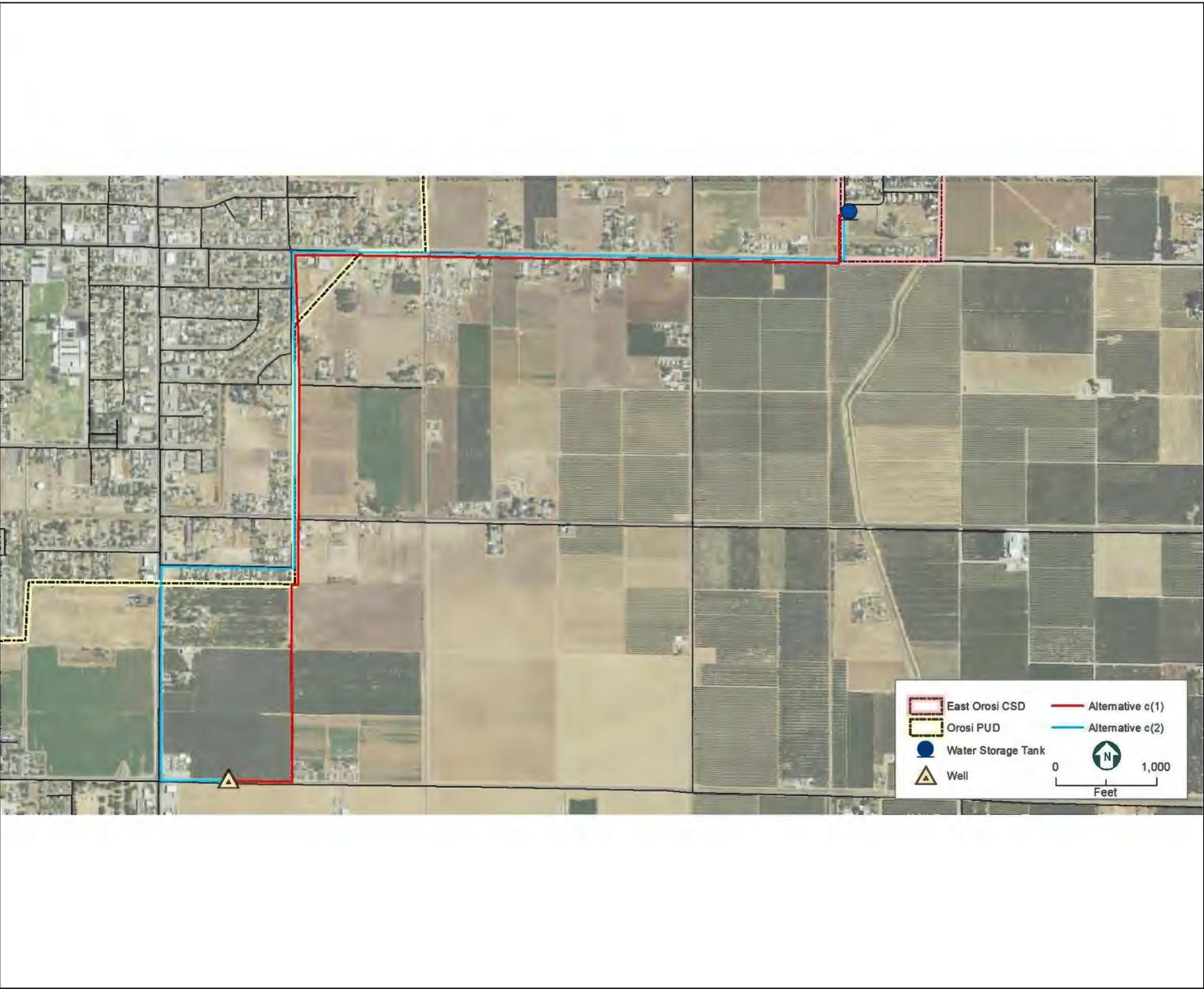


Figure 8  
The Project and Project Alternatives

In October 2016, a test well was completed on the selected site. A fully panoply of State-required potential contaminant tests was run on the (550 foot) test well. The hydrogeologist has reported that a properly-designed production well at the site could produce fully compliant drinking water at a maximum rate of 1,200 to 1,400 gallons per minute, significantly exceeding the supply needed by EOCSD (see Appendix F). It is proposed that the well to be completed under this project be designed to produce, when required, the full variable frequency drive (VFD)-controlled capacity range identified by the hydrogeologist so that its production could be shared, if desired and agreed, by the OPUD.

It is proposed, as components of well design, to provide a hydropneumatic tank, chlorination facilities, a well discharge meter, VFD, site paving and fencing, plus a 6" line easterly of the Road 130 alignment to serve the eight rural residences, and optional metered service connections thereto. (Such connections should be provided to mitigate possible Project-related drawdown impact on the individual-residence wells.) Well pump-curve design should reflect both East Orosi-required flows and Orosi flows if well usage as an Orosi backup is desired.

### **3.3.2 - WATER STORAGE FACILITIES**

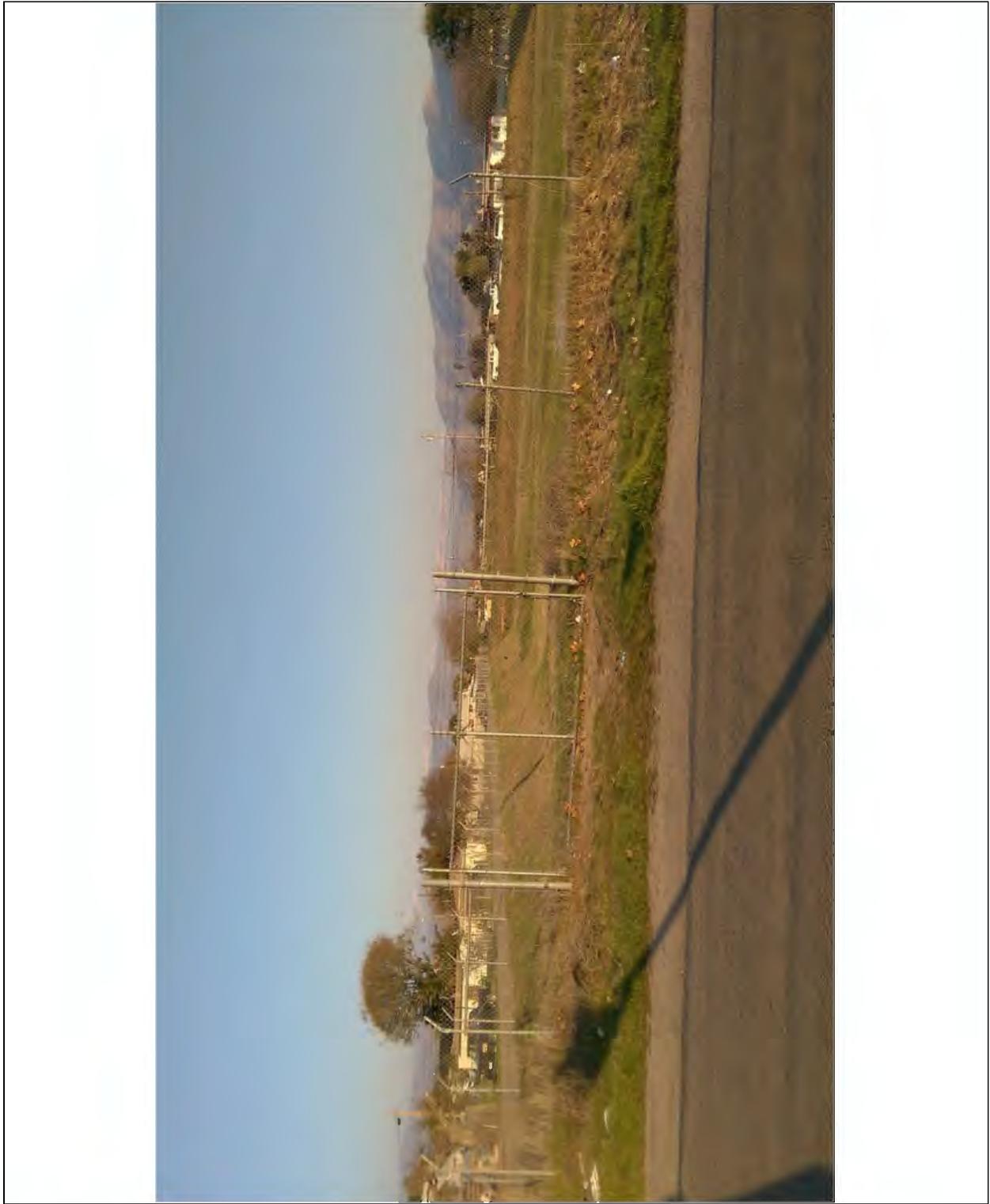
If East Orosi is to operate as an independent water supply system without Orosi interconnection and supply backup, it will be necessary to construct, operate and maintain a storage tank in or near the community.

The apparent best location for such a storage facility is the County stormwater basin at the northeast corner of Avenue 416 and Fruitvale Road (Figure 9). With County cooperation, existing stormwater capacity could be maintained by constructing a ground-level pad at the Fruitvale Road side of the basin utilizing fill material from the basin. It is preliminarily estimated that a 250,000-gallon tank could provide 24 hours of maximum day demand (162 gpm) plus residential fireflow (1 hour x 500 gpm).

If Orosi interconnection and supply backup is made available there is no significant need for in-Orosi storage; EOCSD operations loss would only occur as a result of (unlikely) Avenue 416 pipeline rupture or areawide loss of power. This PER can make, in the absence of data from OPUD, no calculation as to Orosi storage, booster pump, or pipeline needs to provide the backup water supply and incremental storage facilities to accommodate East Orosi storage/backup supply needs. However, it is understood that during initial discussions between OPUD and the State an order-of-magnitude cost of \$2,000,000 for such facilities was mentioned.

### **3.3.3 - DISTRIBUTION SYSTEM**

In 1984, EOCSD's distribution system was upgraded, with the installation of 4" and 6" PVC piping, and interconnection to the two then-existing wells. (Prints of the system as upgraded are on file at QK's office.)



**Figure 9**  
**Storage Tank Location**

There are, at present, approximately 8,900 feet of in-community and well-connection piping, with related valving and fire hydrants. Information provided by the District, through Self-Help Enterprises, and by the private operations/maintenance company which is employed by the District, indicates that the system is experiencing no excessive maintenance or evident deterioration or delivery pressure problems.

Based solely upon that preliminary information, it has been estimated that no more than 500 feet of the system piping may need to be repaired or augmented.

### **3.3.4 - METERING**

There are a reported 101 connections from the distribution system to residences. All are metered, but not with modern remote read and recording meters. There has been no continuing meter maintenance or accuracy-check program. The meters are not considered accurate and as such have not been utilized as a basis for monthly billing.

It is proposed that the existing meters be replaced with remote-read equipment which is fully compatible with Orosi's metering to facilitate either District consolidation or an agreed meter maintenance/meter reading contractual service by Orosi. Such equipment will require new, right-of-way-located meter boxes. It is assumed that existing service connections can be retained.

### **3.4 - Project Alternatives**

There are two physical alternatives for piping connection from the well to East Orosi (see Figure 8). They are:

- C-1 Approximately 12,000 feet of 8" pipeline, in private easement right-of-way and public roads, from the well to the East Orosi distribution system and to a storage tank at the southwest border of EOCSD.
- C-2 Approximately 13,000 feet of 12" and 10" pipeline, to the EOCSD distribution system.

In brief clarification of these pictured alternatives:

- (C-1) Cost savings in the order of \$380,000 may be effected by "wheeling", with Orosi assent, through existing 8" Orosi pipeline on Road 130 and Avenue 416.
- (C-2) This alternative includes 12" pipe on State Route 63 to permit well interconnection to the Orosi system. 10" piping could be utilized from that point to EOCSD.

These alternatives become most feasible with mutual-benefit cooperation between OPUD and EOCSD. Feasible levels of such cooperation which have been selected for analysis include:

C-1(a) Direct connection from the wellsite (east along Avenue 408 to a Road 130 alignment and north to Avenue 416) with an in-community storage tank.

C-1(b) Connection through Orosi (along the same alignment, Road 130, and north to Avenue 416) with a portion of the connection utilizing existing Orosi pipeline, with an East Orosi/Orosi services contract for well and pipeline connection, its East Orosi distribution system and meter maintenance/operation, and meter reading.

C-2(a) Connection through Orosi (west on 408, north on SR 63, east on Albert Avenue, north on Road 130, east on Avenue 416) with the same service agreement as Alternative C-1(b), with a backup water supply from Orosi, and availability of East Orosi well's excess capacity to Orosi.

C-2(b) The same connection as Alternative C-2(a) with consolidation of the two Districts, thus effecting the service agreement-relationship plus billing, full financial responsibilities, and permanent responsibility for water supply backup.

### **3.5 - Facilities Cost Comparisons**

The facilities costs of the Project and the Project Alternatives are estimated, based upon currently available data, to be:

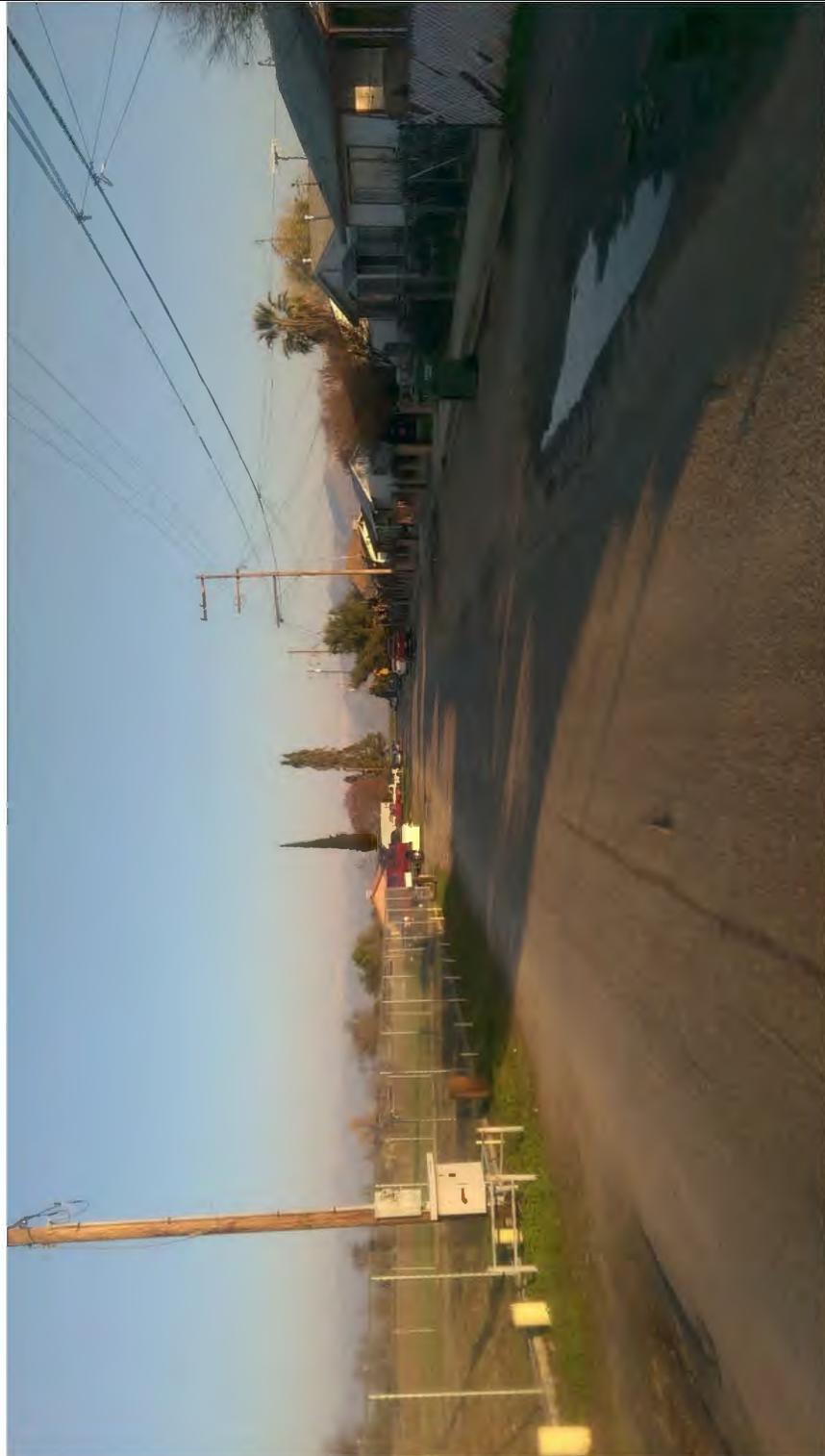
- Well/well head/well adjacent equipment and piping: \$850,000  
(including hydropneumatics tank, meter)
- Distribution system repair/augmentation: \$150,000
- Meter and meter box replacement: \$150,000
  
- (C-1) Direct connection
  - Pipeline: \$1,426,000
  - Storage tank (including booster pump): \$550,000
- Total project, with C-1 alternative: \$3,126,000
  
- (C-2) Orosi – East Orosi
  - Pipeline: \$1,828,000
- Total project, with C-2 alternative: \$2,978,000
  
- Contingencies @ 20%, Alternate C-1  
(resurfacing, soils testing, fire hydrants, etc.) \$625,000
- Contingencies @ 20%, Alternate C-2

(resurfacing, soils testing, fire hydrants, etc.)	\$596,000
Subtotal, construction, Alternate C-1	\$3,751,000
Subtotal, construction, Alternate C-2	\$3,574,000
• Engineering, @ 6 ½%	
Alternative C-1	\$244,000
Alternative C-2	\$232,000
• Surveying (design, rights-of-way)	\$30,000
• Appraisals, rights-of-way, legal fees	\$100,000 (C-1only)
• Environmental analysis (mitigated negative declaration)	\$55,000
• Construction services (project management, client representation, construction observation) (12%)	
Alternative C-1	\$450,000
Alternative C-2	\$429,000
Total costs, Alternative C-1	\$4,630,000
Total costs, Alternative C-2	\$4,320,000

These costs do not include, for Alternative (C-2), any storage/electrical, pressure pump costs which may be required for OPUD provision of a “back-up” water supply.

As a further caveat, these cost comparisons have utilized conservative design assumptions including, for example, the assumption that both existing residential services and some rights-of-way conditions may result in County demands that pavement be replaced rather than trench-patched (Figure 10).

In essence, the Project with either Alternative is, within the accuracy of these pre-design estimates, essentially the same cost.



**Figure 10**  
**Rights-of-Way, Typical**  
**(Albert Avenue)**

## **SECTION 4 - ALTERNATIVES RATINGS**

### **4.1 - Introduction**

In this Section, the well-to-community alternatives described in Section 3 will be evaluated. The distribution system/metering components of the project have no alternatives.

In review, the alternatives and their non-physical variants are:

C-1(a) Direct connection from the wellsite (east along Avenue 408 to a Road 130 alignment and north to Avenue 416, east on 416) to the community with an in-community storage tank.

C-1(b) Connection through Orosi (along the same alignments) with a portion of the connection utilizing existing Orosi pipeline, and with an East Orosi/Orosi services contract for well, pipeline connection, the East Orosi distribution system and meter maintenance/operation, and meter reading.

C-2(a) Connection through Orosi (west on 408, north on SR 63, east on Albert Avenue, north on Road 130, east on Avenue 416) with the same service agreement as Alternative C-1(b), with a backup water supply from Orosi, and availability of East Orosi well's excess capacity to Orosi.

C-2(b) The same connection as Alternative C-2(a) with consolidation of the two Districts, thus effecting the service agreement-relationship plus OPUD billing, full financial responsibilities, and permanent responsibility for water supply backup.

In evaluating these alternatives, the following factors will be considered and discussed:

- Water supply reliability;
- Facilities construction costs;
- Operations and maintenance effectiveness;
- Water rates;
- Participant willingness; and
- Other benefits/constraints.

There will be no attempt to numerically “rate” the considered factors for each alternative. Such rating would be meaningless. Rather, the discussions will incorporate not only the physical comparisons and benefits of the alternatives, but their relative feasibility and costs based on available data.

## **4.2 - Ratings**

### **4.2.1 - WATER SUPPLY RELIABILITY**

Alternatives C-1(a) and C-1(b) include, in addition to a normal well-head electrical outage-related Diesel drive, short-term backup for well-to-community pipeline failure, an augmented short-term reliability, with an in-community storage tank with similar electrical outage-Diesel drive.

Alternative C-1(b) provides additional water supply reliability with Orosi operation and maintenance of the total East Orosi water system.

Alternatives C-2(a) and C-2(b) provide not only operation and maintenance reliability, but also the benefits of backup water supply from the OPUD water system. That backup supply replaces the water supply reliability of the in-East Orosi storage tank. Alternative C-2(b) offers the additional long-term reliability afforded by a continuing legal responsibility to provide water, from whatever source, to all residents within the OPUD.

### **4.2.2 - FACILITIES CONSTRUCTION COSTS**

The construction costs of Alternative C-1 and Alternative C-2, and their variants, are, as estimated in Section 3, essentially the same. It is not known, however, what the costs of in-Orosi 'backup' facilities might be. Previous, reported, estimates of such costs have been in the order of \$2,000,000.

### **4.2.3 - OPERATIONS AND MAINTENANCE EFFECTIVENESS**

Alternative C-1(a) assumes that East Orosi would be responsible, as at present, for its total water-system. The limited size and financial resources of the community, and thus of the EOCS, have precluded and will preclude a staff-provided operation and maintenance program for the system. Although it is possible for the District to contract with a competent, properly registered, private firm for this purpose, community system size makes such services financially difficult.

Alternative C-1(b), and the C-2 alternatives, assume operations and maintenance by OPUD, integrating them with existing OPUD staffing responsibilities. Alternative C-2(b), with East Orosi system billing and management by OPUD, would assist in rendering such services on a cost-effective basis.

### **4.2.4 - WATER RATES**

Current East Orosi water system services are financed by a flat rate of \$17.15 per month for each connected water user. The income from those rates is principally utilized for operation of the remaining existing well, for required water supply testing and reporting and for essential contractual legal, operations/maintenance and accounting services. Absent final design of new well production and storage facilities, and accurate information regarding

water usage, it is difficult to estimate what metered water rates will be under Alternatives C-1(a) or C-1(b). However, the 2015 audit (Appendix E) shows the water system operating at a loss; all state required testing and reporting is not currently being performed; the cost for contracted services must reflect both inflation-increases, and meter calibrating and reading, and additional pump/supply line to be maintained. Electrical energy costs will more than double because of increased well supply pipeline length and the standby electrical costs of two wells and a storage tank booster pump.

Reviewing the audit information, it appears that increased maintenance personnel costs and materials costs would be \$20,000, eliminating purchased water costs would save \$6,000 and funding the 2015 net loss would be \$12,000. Utilities costs increase for standby charges and electrical usage would be in the order of \$10,000. These direct cost changes would thus be approximately \$36,000. Depreciation and amortization indirect costs would increase, as a minimum, assuming 50 years average facilities life at 7%, in the order of \$10,000 per year. The total increase in required costs for operation and maintenance of the water systems would thus be approximately \$46,000 per year, approximately double those at present. Necessary water rates would thus be in the order of \$35 to \$40 per served customer per month.

It is evident that this severely disadvantaged community could afford little more than these rates; that it will be essential for State funding of the project capital facilities to be on a grant rather than a loan basis.

Meaningful rate calculations must await final project design and construction and the resulting ability to accurately calculate operating costs. However, a current rate study prepared by the Rural Community Assistance Corporation as a component of the November 23, 2016 Northern Tulare County Evaluation of Governance Structures and Affordability is included in Appendix I of this PER.

All OPUD water users are billed upon the basis of metered water usage. Details regarding this metered water rate system are not available for this report. If the OPUD provides, under contract, a backup water supply to East Orosi, it is probably legally required to charge out-of-PUD users at rates similar to those of in-District users (Alternative C-2(a)). Under Alternative C-2(b) such rates would be those of the combined District. It is assumed that, given the operational and maintenance effectiveness of the PUD, such rates may be lower than those obtainable under Alternative C-1(a) or C-1(b).

#### **4.2.5 - PARTICIPANT WILLINGNESS**

With respect to key agencies whose viewpoints regarding the various alternatives have an impact on their selection or implementation:

- The EOCSD is willing to consider consolidation with OPUD if such consolidation is required to obtain State funding for this Project.

- The OPUD has expressed a desire to be helpful to East Orosi. However, it is opposed to consolidation of EOCSD and OPUD, Alternative C-2(b). It has therefore directed its staff not to furnish information which would, at this time, be helpful in evaluating the feasibility of Alternatives C-1(b) or C-2(a) and C-2(b).

The OPUD staff has, in the past, requested information regarding EOCSD's financial status and procedures in order to evaluate the impacts of EOCSD consolidation upon OPUD's resources. The staff has also noted that consolidation not only requires long-term assurance of drinking water-compliant water supply to East Orosi, but would also require assumption of East Orosi's wastewater system. OPUD has a history of not annexing adjacent properties and proposed developments to the District because of concerns regarding OPUD's ability to provide continuing wastewater facility capacity to such annexed developments.

- The State Water Resources Control Board Drinking Water Division has stated that, in accord with SWRCB/DWD policy, it will require consolidation of the two Districts, Alternative C-2(b).
- The Tulare County Local Agency Formation Commission (LAFCO), which legally approves Districts consolidation (Appendix G), has not been requested by either District to rule upon such action nor has it taken action to undertake a legally-required consolidation study precedent to Agency initiation of consolidation proceedings.

#### **4.2.6 - OTHER BENEFITS/CONSTRAINTS**

- System Management

Alternatives C-1(b) and C-2(a) reduce the water system management responsibilities of the EOCSD Board; Alternative C-2(b) eliminates that responsibility.

- Local Control

Alternative C-2(b) eliminates the East Orosi community's local control over its water and sewer systems and water rates.

- Funding

If the State maintains its position regarding District consolidation, Alternate C-2(b), and Orosi maintains its opposition to such consolidation, the Project would at best be delayed until agreement is reached or consolidation is effected. Funding availability, if delayed, may be problematic. No other funding source for the project is apparent.

## **SECTION 5 - ALTERNATIVES EVALUATION SUMMARY**

The costs of all Alternatives are similar (except for unknown, and probably significant, OPUD costs). It is evident that the C-2 Alternatives are, given cooperation by the OPUD, feasible and desirable from water supply reliability and operations and maintenance standpoints. Available data does not permit accurate calculation of water rates. The intangible benefits or losses associated with local control cannot be evaluated in this report. It should be noted however, that Alternative C-2(b)'s transfer of legally-required long-range water supply reliability, and of responsibility for East Oroshi financial management, rate-setting, and billing for water supply (and wastewater) to OPUD, may be a major benefit to East Oroshi.

It is equally evident that potential in-OPUD funding impacts, and disagreement between the State and OPUD with respect to Alternative C-2(b), are critical issues with respect to Alternatives evaluation. It is beyond the purview of this report to evaluate these issues. Such evaluation remains the responsibility of the State, OPUD, LAFCO, and the community of East Oroshi.

## **SECTION 6 - RECOMMENDATION**

It is recommended that Alternatives C-2(a) or C-2(b) be implemented, and that Alternative C-2(b) be considered to be preferable from East Orosi's standpoint if the parties in interest (EOCSD, OPUD, the State, and LAFCO) can reach agreement.

## **APPENDICES**

## **Appendix A**

### **Water Usage and Calculation of Design Alternatives Costs**

## **Appendix A – Water Usage and Calculation of Design Alternatives Costs**

### **A. Projected flow demands**

Attached hereto are the available metered well production records for the District. It is evident by inspection that major portions of the records reflect meter error and cannot be used for design of well supply needs for this project.

Selecting seven months, March through September of 2014 as perhaps most accurate, the average monthly metered production for the period was approximately 3,382,000 gallons<sup>1</sup>, with a maximum day flow of (maximum month/30.5), 4,592,000/30.5, 151,000 gallons (Table A-1).

Maximum day flows x 1.5 [per CWS Section 64554(b)(2)(c)] may be calculated as maximum day demand (MDD) < 151,000 x 1.5, 227,000 gallons per day, 157 gallons per minute. Maximum day demand (MDD)/1,440 x 1.5 = peak hour demand (PHD), 227,000/1,440 x 1.5, 243 gallons per minute.

Fire flows, with the existing distribution system of 4" and 6" lines, cannot be obtained at normally-required residential levels and durations. The community's small residential structures and structure-to-structure separation do not warrant such flows and duration – 1,000 gallons per minute, with 20 psi pressure at hydrants, for one to two hours. Informal contact with a Tulare County fire official indicated that 500 gallons per minute with one hour duration would be minimally satisfactory. The existing fire hydrant system, supplied with 6" or multiple 4" hydrant supply lines, can meet this standard given adequate supply and pressures to the community distribution system.

Such adequate supply (500 gpm) and 20 psi pressure, should be provided with maximum day demand (MDD) of 157 gpm for a total required flow of 657 gallons per minute. Alternative well-to-community piping and in-community storage will be evaluated and cost-estimated on this basis.

(It should be noted that an analysis of possible water demands from the approximately 40 residences/businesses along Avenue 416 between Orosi and East Orosi were considered in line-sizing calculations and did not require line-size increases to accommodate such flows.)

### **B. Evaluation of well-to-community piping alternatives and in-community storage**

Two basic alternatives will be evaluated. One is a direct connection from the wellsite east on Avenue 408 for 660 feet, and then north from Avenue 408 to Avenue 416, and east on Avenue 416 to the East Orosi distribution system and to an in-community storage tank (Alternative C-1; see map on following page). The second is west from the wellsite on Avenue 408 to State Route 63, north to Albert Avenue, east on Albert to Road 130 and north to Avenue 416, thence east to the community water system (Alternative C-2 on the map on the following page).

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<sup>1</sup> 3,382,000 gallons/30 days, 112,700 gallons per day @200 gallons per capita per day equals anticipated flow from a population of approximately 560 residents

### Alternative C-1

Assuming a 40 psi pressure at the wellsite, a 20 psi pressure at the community, and a MDD of 157 gpm plus 500 gpm of fire flow (C value of 140) would be the allowable and actual head loss in an 8" PVC pipe:

40 psi-20 psi = 92 ft. head - 46' ft. head = 46 ft. allowable head loss  
11,880 ft. of 8" piping x .76 ft of head loss per 100 ft. = actual head loss = 87 ft

It is evident that a storage tank in the community would be preferable to assure adequate fire flow on days of maximum demand. It would be necessary to increase pump discharge pressure to 60 psi to allow MDD plus fire flow in an 8" connector. Resulting line pressures would be undesirable for potential service connections to the transmission line on the Avenue 416 alignment and would preclude the possibility of "wheeling" as much as 3,960 feet of the transmission line through existing Orosi pipeline given Orosi agreement.

An in-community storage tank should be capable of providing 24 hour backup for well pump or transmission line failure plus providing minimum fire demand during that period. The size of tank required to satisfy these needs would be  
 $(162 \text{ gpm} \times 1,440) + (500 \times 60) = 233,300 + 30,000 = 263,000$

A 250,000 gallon tank is recommended.

With such an in-community storage tank, an 8" line with only a 162 gpm flow would have a head loss of:

11,880 ft. of 8" piping x .061 ft. of head loss per 100 ft. = actual head loss = 7 ft.

(A 6" line would have a head loss calculated as: 11,880 ft. of 6" piping x .23 ft. of head loss per 100 ft. = actual head loss = 27 ft.)

An 8" line is recommended in order to provide minimal maximum day fire flow (about 300 gpm) if the on-site storage tank were to be out-of-service (empty for maintenance, etc.).

The estimated cost of these two Alternative C-1 components is:

- 11,880 feet of 8" PVC, including 9,800 feet in public right of way requiring maximum compaction and resurfacing, @ \$120 per lineal foot, \$1,426,000
- Steel, toroidal, surface storage tank plus pad construction, booster pump: \$550,000

Total: \$1,976,000

A variant of this basic alternative is possible if agreed by Orosi, "wheeling" through approximately 3,800 lineal feet of existing Orosi pipeline, for example. Such a variant could reduce this Alternative's cost by approximately (3,800 feet x \$100 per foot) \$380,000 to \$1,596,000.

## Alternative C-2

This alternative would involve the construction of a 12" line from the wellsite to Albert Avenue and a 10" line from State Route 63 to East Orosi on the alignment described above and depicted on the attached map. From the wellsite to Albert Avenue the line would accommodate its usage by Orosi (at 1,200 gpm) as well as supplying maximum day demand (157 gpm) to East Orosi. (The project hydrogeologist has projected that a properly constructed well at the selected site would be capable of producing 1,200 to 1,400 gpm.) The balance of the route would supply East Orosi fire flow and maximum day demand (657 gpm). There would be no East Orosi in-community storage tank.

Allowable head loss would, again, be 46 feet.

2,835 ft. of 12" piping, at 1,357 gpm, x .40' ft. of head loss per 100 ft. = actual head loss = 11.3 ft. + 10,395 ft. of 10" piping, at 657 gpm, x .26' ft. of head loss per 100 ft. = actual head loss = 27 ft.\*

Total head loss = 38 ft.

\*Total 8" pipe head loss would be approximately 82 ft.; unacceptable

The estimated cost of this alternative pipe routing would be:

2,835 ft. of 12" piping @ \$150/ft. = \$425,000  
10,395 ft. of 10" piping @ \$135/ft. = \$1,403,000

Total: \$1,828,000

It would be possible, given Orosi approval, to reduce this cost by "wheeling" through approximately 4,460 feet of 8" Orosi line and paralleling that line with an 8" line at a cost savings of  $(\$135-\$120) \times 4,460$  ft., \$67,000, to \$1,761,000.

**Appendix B**

**LAFCO East Orosi Community Services District  
Municipal Services Review**

## **East Orosi Community Services District Municipal Services Review**

The East Orosi CSD (EOCSD) Municipal Service Review report was prepared pursuant to Section 56430. The report begins by providing district background information and then summarizes data collected and analyzed for the purpose of supporting written statements of determination with respect to each of the following: 1) Growth and population projections for the affected area; 2) Present and planned capacity of public facilities and adequacy of public services, including infrastructure needs or deficiencies; 3) Financial ability of agencies to provide services; 4) Status of, and opportunities for, shared facilities; 5) Accountability for community service needs, including governmental structure and operational efficiencies; 6) Any other matter related to effective or efficient service delivery, as required by commission policy. Data was provided by the Tulare County Environmental Health Division (Environmental Health), Community Water Center (CWC) and Self-Help Enterprises. Visalia Times Delta and Fresno Bee articles as well as Tulare County Grand Jury (Grand Jury) reports were also reviewed for pertinent information. A thorough review of stated responsibilities to be effected, procedures followed and legislative intent specified in the CSD Law was also conducted. An informational survey was mailed to the EOCSD on three separate occasions, no response has been received. The MSR report format used in the Group 1,2 and 3 MSR reports has been changed to reflect the amendments to CKH Section 56430 as a result of AB 1744 (Ch. 244, Stats 2007).

### **Background**

The East Orosi Community Services District is located approximately .5 miles east of the community of Orosi. District boundaries are bordered by Avenue 416 to south, Ione Avenue to the east, Fruitvale Avenue to the west and the District's northern boundary is south of Avenue 420. The EOCSD boundaries encompass a 53-acre area while its LAFCO established Sphere of Influence (SOI) covers a 145-acre area. The District last amended its SOI in 1998 (LAFCO Resolution 98-016). The District's system is regulated by the Tulare County Environmental Health Services Division, which has been granted primacy by the California Department of Health Services. The division is responsible for the administration and enforcement of the Safe Drinking Water Act involving systems in Tulare County with less than 200 connections.

The EOCSD was formed in December of 1954. Formation of the District was not subject to LAFCO approval. According to Board of Supervisors Resolution 54-2011, which authorized formation of the District, the EOCSD was authorized to provide water for domestic use, irrigation, sanitation, industrial use, fire protection, and recreational use upon formation. The EOCSD was providing water supplies for the aforementioned uses prior to January 1, 2006; thus, the District does not possess any latent power whose activation is subject to LAFCO Commission approval or disapproval. Sewer service is provided under contract by the Cutler Public Utilities District (PUD). The Cutler PUD also provides service to Orosi PUD and Sultana CSD customers and the CSA No. 1 Yettum and Seville Zones of Benefit.

## Written Determinations

### 1) Growth and Population Projections

1. As of January 2011, the EOCSD serves approximately 130 residential connections and 1 food service facility.
2. Environmental Health estimates the total population within the District's boundaries to be 700 persons. Environmental health estimates are based on an approximation ascertained by the District manger using the total number of connections served and what the manger believes to be the average household density. The Community of East Orosi; however, is a Census Designated Place for which detailed population and demographic information is available. The 2010 Census estimates the community's population to be 386 persons. The average household size is 4.28 persons per unit and approximately 41% of individuals residing within the community live below the federal poverty line. Meanwhile, the 2000 Census estimated the community's population to be 426 persons, 24.6 years of age as the community's median age and approximately 30% of community residents living below the federal poverty line.
3. According to the Tulare County planning department there are no permits currently issued for construction of new dwelling units or expansion of existing residential developments within the District's boundaries.

Based on the absence of building permits issued for construction of new dwelling units or expansion of existing residential developments within district boundaries, the fact that the District has not proposed an annexation since its formation and the limited capacity of the District's community water system, it can be logically determined that the District's population will remain at substantially the same level for the next 5 years (next MSR update is scheduled to be conducted in 2016).

Furthermore, a comparison of 2010 Census estimates to those compiled in 2000 indicates that the EOCSD is in almost the exact situation as the Ducor CSD. East Orosi residents possessing higher upward mobility potential (an individual's capacity or facility to attain a higher social or economic position), compared to other community residents, tend to move out of the community once they are able. This reduction in total population coupled with the increase in the community's high concentration of poverty have an effect whereby a reduced pool of customers that is less able to bear the economic burden of traditional revenue generating mechanisms (rate hikes, benefit assessments, special taxes or bond debt) effectively force the District to rely almost exclusively on State and Federal funds to cover infrastructure upgrades or even basic maintenance/operating costs for an aging system. Like Ducor, the lack of economic opportunity in the region, in effect, ensures that this cycle will continue. Outside funding sources are awarded through a lengthy process. The length and uncertainty of securing outside funding in conjunction with the District's inability to generate revenue using its customer pool make it likely that a crisis situation will occur that puts an inordinate financial strain on customers and creates dangerous risks to their health.

## **2) Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies**

1. The EOCSD community water system relies entirely on groundwater supplies pumped from the Kings River Sub Basin. The system consists of (2) drilled wells, which use 7.5 hp submersible pumps to funnel water through a single check valve and into (2) corresponding pressure storage tanks. The distribution system further contains galvanized (4) inch mains and (1) inch laterals.
2. Well 01, located at the eastern end of the District, acts as the primary source of water during the months of October through March. Well 02, located at the District's western boundary, acts as the primary source of water April through September.
3. EOCSD's water system contains no method of treatment such as coagulation and flocculation, sedimentation, filtration or disinfection.
4. The District's Sanitary Survey conducted in January of 2011 by Tulare Environmental Health found that the EOCSD's source and distribution facility are capable of providing a reliable water supply and recommended that a water supply permit be issued subject to an ongoing water quality monitoring schedule, clearing of vegetation near wells 01 and 02 and near their respective storage tanks and replacement of Well 01 vent pipe screen with fine mesh screen.
5. EOCSD's December 2010 sample test results for bacteriological contaminants (required each month) resulted in a single positive sample for total Coliforms, one absent sample, and (3) positive repeat samples. A notice of violation was rendered to the EOCSD of the positive results. The notice directed EOCSD management to provide the legally required notice to district customers advising them of this total Coliform violation. Proof of customer notice must be submitted to Tulare Environmental Health. The EOCSD's Environmental Health File does not contain proof of customers notice.
6. Lead and copper samples (required annually) must be collected in the months of June, July, August and September only; thus, no results are available for 2011.
7. Chemical sample test results, which determine Nitrate levels, are required to be submitted on an annual basis; however, once in violation, community water system operators must submit test results to Tulare County Environmental Health on a quarterly basis. In addition, water system operators must notify customers of the violation and submit proof of notice to Tulare Environmental Health. Records indicate May 2009 sample test results showed Nitrate levels exceeding the maximum level contaminants (MCL) allowed by law. A December 10, 2009 notice of violation for failure to provide quarterly sample test results was provided by Tulare Environmental Health requesting that management submit chemical Nitrate testing results for both wells 01 and 02. A July 20, 2010 letter provided by Tulare

Environmental Health indicates that the District was in violation of the aforementioned proof of notice requirement in the first 2 quarters of 2010; this notice seems to stem from the May 2009 Nitrate MCL violation. A July 20, 2010 notice of violation once again indicates sample test results exceeded Nitrate MCL and a subsequent January 27, 2011 notice of violation for failure to provide quarterly sample test results was also provided. Proof of customer notice for this specific violation was not found.

8. The California Safe Drinking Water Act requires each public water system operators to prepare a Consumer Confidence Report (CCR) on an annual basis and mail/deliver a copy to each customer by July 1 of the year following the year for which the CCR is prepared. Proof of CCR distribution must be provided to Tulare Environmental Health. The CCR contains a key defining the terms used in the report, list of common contaminants found in drinking water, tables listing raw sample test results followed by a brief description of common contaminant sources. The abovementioned Nitrate violations were not identified in the 2006-2009 CCRs. A July 15, 2010 notice of violation provided by Tulare Environmental Health to the EOCS D indicates that the EOCS D failed to provide proof that a CCR was prepared and distributed for the 2009 calendar year. A similar notice was also submitted on July 15, 2009 for the 2008 CCR. Proof of 2008 and 2009 distribution was found in the EOCS Ds file, which signifies that these CCRs were not provided to customers in a timely manner.
9. A Compliance Order provided by Tulare Environmental Health, dated April 15, 2010, cites the following EOCS D violations of law: system operating a well that produces water not in compliance with primary drinking water standards (H & S Code Section 116555 (a) (1)), failure to ensure a pure, wholesome, healthful and potable supply of water (H & S 116555 (a) (3) and Nitrate levels exceeding the MCL allowed by law (CCR 64431 (a)). The order requests the EOCS D provide a plan to address the violations, complete with timeline, and sets forth compliance requirements, including the aforementioned quarterly submittal of chemical sample test results and notices of violation to District customers on a quarterly basis.
10. A January 2008 Tulare Environmental Health notice advises the District to continue to adhere to all reporting requirements, sustain efforts to address nitrate violations, and continue to provide customer notice requirements so long as violations continue. This notice indicates that the District has been in violation of Nitrate MCLs allowed by law since at least 2008.
11. In accordance with the State's Safe Drinking Water Act, each water supplier must have a certified operator on staff. A Tulare Environmental Health notice of violation indicates that as of 12-9-2009, the EOCS D is in violation of this provision and does not have a certified operator on staff.
12. CCR's were prepared for the years 2006, 2007, 2008 and 2009 (no further CCRs were found in the EOCS D Environmental Health file). Sample data is provided, but no explanation is provided regarding what raw data means.

13. The EOCS D office consists of a mobile home that sits on land donated by a local property owner. Both day-to-day operations and district public meetings are conducted in the mobile home. It is estimated that the mobile home can only accommodate approximately 5 people at one time.

Based on the records examined, it is determined that the EOCS D water system is chronically in violation maximum Nitrate levels allowed by law. It is further determined, based on the multiple notices of violation for failure to provide sample test results, CCRs, and customer notices of violation, that it is very likely system customers are not even aware of the serious contamination issues facing their water system. Without being properly informed, district customers cannot safeguard against the health hazards posed by water contamination thereby putting their health and safety at risk.

Staffs determinations are further substantiated by a series of news reports that have recently examined potable water quality in small Tulare County communities, East Orosi included. A Fresno Bee article published March 16, 2011 details a recent study conducted by the Oakland think tank, Pacific Institute. The study found that it would cost approximately \$150 million to address Valley-wide water contamination issues. The study also determined that low-income residents living within communities served by small water systems use approximately 4.6 % of their income for water supplies (this includes both system user fees and bottled water); the federal standard for affordability is 1.5%. The study further found that regulatory agencies do not adequately inform customers when system contamination does occur. A news report that aired on KPMH Fox 26, a local Fox affiliate, also examined the issue of poor water quality within the Valley's small unincorporated communities. In timely fashion, the news report focused on the community of East Orosi. An EOCS D customer interviewed explained that she has been dealing with high Nitrate levels in her water since 2002 and must purchase bottled water for drinking and cooking, an expense that drastically drains her financial resources. Another EOCS D customer interviewed explained that there is no alternative for water used to shower and that system water commonly causes rashes and severe discomfort.

It is determined that a mobile home only able to accommodate 5 people at one time is an inadequate facility in which to hold public meetings, particularly for a district containing 386 customers.

It is also determined that the scenario described above, in which the District's exclusive reliance on outside funding sources creates an undue economic burden on district customers and/or exposes them to severe health risks, seems to already be taking place. State and federal grants/loans only offer short-term solutions and simply mask the larger structural forces behind continual service/infrastructure needs and deficiencies. This makes clear that a new approach must be pursued. Consolidation of the EOCS D with the various CSD's and Public Utilities Districts (PUDs) in the Cutler-Orosi region is a logical and highly feasible option.

### **3) Financial Ability of the Agency to Provide Services**

1. The EOCSD's funding comes exclusively from user fees. Rate information was not provided by the District.
2. A Sacramento Bee article published on February 16, 2008, quotes an East Orosi CSD customer as saying that her water bill averages \$57 per month in addition to the cost of bottled water she must purchase because of the highly contaminated water the EOCSD wells produce. In this same article, an EOCSD meeting was described during which EOCSD customers in attendance requested that district water rates be reduced because customers can hardly use the water provided by the District. EOCSD board members present at the meeting indicated that there is a fixed cost to pumping the water and distributing to customers; thus, there is little that can be done to lower the rates. As previously mentioned, this results in district customers, 60% of which live below the federal poverty line, using a proportion of their income for the purchase of water that's three times the federal guideline of affordability.
3. Several requests were submitted by Tulare LAFCO to EOCSD management for district information, including their most recently adopted budget. None of the requests were answered. However, the State Controller's Office does post special district revenue, expense and debt totals on its website, but unfortunately the most recent data is from fiscal year 2007-2008. According to the information submitted by the EOCSD FY 2007-2008 operating revenues totaled \$54,584, operating expenses totaled \$67,892, total non-operating revenues totaled \$1,735 and total non-operating expenses totaled \$2,775. All told, the EOCSD reported a net income loss of \$14,348.

As previously mentioned, given the community's high concentration of poverty, the disproportionate level of discretionary income customers pay for water and the trend of reduced economies of scale, the District has no choice but to rely on outside funding sources in order to address the high levels of Nitrates documented above. Furthermore, as evidenced by the \$14,348 net income loss reported in FY 2007-2008, much of the funding the District is able to procure will go to basic maintenance and operation of the system rather than improvements at crux of contamination issues. Thus, it is determined that the system's current financial ability to provide potable water to its customers is extremely delicate while its ability to provide service in the long-term is almost certainly infeasible. It is further determined that the District can take steps now in order to ensure that the quality of water received by district customers in the future improves and that service provision itself continues. Again, consolidation of the various districts in the Cutler-Orosi area can address the issues that plague the EOCSD water system in an enduring and effective manner.

### **4) Status of, and Opportunities for, Shared Facilities**

1. The EOCSD's public water system infrastructure and facilities are not shared with any other entity, public or private. The EOCSD does have a contractual agreement with the Cutler PUD for the provision of sewer service. Since the service is managed

by the Cutler PUD staff and it is the Cutler PUD's infrastructure that's used for this service, sewer service to EOCS D customers should be assessed as part of a comprehensive assessment of the Cutler PUD.

2. The EOCS D is located within proximity to three other domestic water providing special districts, Orosi PUD, Cutler PUD and the Sultana CSD as well as the hamlets of Seville and Yettem, which contain significant populations and are served by mutual water companies. Additionally, the Alta Irrigation District is in the process of preparing a feasibility study that will examine provision of treated surface water to Cutler-Orosi area water purveyors for distribution to area customers. This is an ideal situation for shared infrastructure and facilities that will expand the number of sources from which to extract water and increase the resulting district's economies of scale.

Given the District's seemingly intractable Nitrate contamination issues, inadequate facilities and its inability to fund long-term solutions, EOCS D consolidation with surrounding special districts (most of which face the same issues) as part of an area-wide consolidation effort is determined to be imperative.

#### **5) Accountability for Community Service Needs, Including Governmental Structure and Operational Efficiencies**

1. The EOCS D has a 3-member board of directors. Board members are elected at large. Meetings are scheduled every last Wednesday of the month at 6:30 PM and take place at the district's office. According to the Community Water Center (CWC), which has conducted extensive organizational/educational efforts within the community of East Orosi, the EOCS D board has failed to meet quorum for a majority of 2010. LAFCO Staff has also found it difficult to speak with a district representative during multiple attempts. Other agencies, such as Environmental Health echo the difficulty in contacting EOCS D officials.
2. According to the CWC, there is also concern among residents regarding the District's billing and record keeping system. The crux of the issue is that most customers can only make payment in cash. If the receipt issued by the District is lost, customers have no proof that payment was provided in a timely manner. There have been several instances where the District's poor record keeping has led to customers being billed again for charges already paid. In those instances where customers no longer have their receipt, they are forced to pay the charges yet again. Given the financial strain the average EOCS D customer is under, this situation can have a severe impact on those forced to pay a bill twice.
3. As mentioned in the previous section, the State has requested financial information from the District, specifically staff salary information. The EOCS D has yet to provide this information.

4. The Tulare County Environmental Health Services Division has been granted primacy by the California Department of Health Services and regulates the District's system. The division is responsible for ensuring that the EOCSD complies with the Safe Drinking Water Act regulations. In order to accomplish this the division conducts the following analysis:

<b>Analysis</b>	<b>Frequency</b>
Bacteriological	Monthly
General Mineral & Physical	Every 3 years
Secondary Standards	Every 3 years
<b>Organic Chemical</b>	
Volatile Organic	Every 6 years
MTBE	Every 6 years
<b>Inorganic Chemical</b>	
Nitrate	Quarterly
<b>Synthetic Organic</b>	
Alachlor	Every 9 years
Atrazine	Every 9 years
DBCP & EDB	Every 3 years
Simazine	Every 9 years
<b>Radiological</b>	
Gross Alpha	Every 4 years
Lead & copper (point of use)	Annually

(Note: water samples are tested for Nitrates on an annual basis; however, the EOCSD continues to be in violation of Nitrate standards and must provide sample test results on a quarterly basis)

5. As previously mentioned, the State's Safe Drinking Water Act requires that a Consumer Confidence Report (CCR) be prepared and distributed to all customers before July 1 of the year after the year for which the report was prepared. The CCR defines the terms used in the report, list of common contaminants found in drinking water, tables listing raw sample test results followed by a brief description of common contaminant sources. The CCR; however, offers no explanation of what raw testing data means and fails to identify violations discovered during the subject year (the Nitrate level violations detailed above were not mentioned in any of the EOCSD CCRs on record).
6. The Tulare Environmental Health's Sanitary Survey Report found that the system is capable of providing reliable drinkable water and recommended that the EOCSD be issued a domestic water supply permit.
7. The EOCSD does not maintain a webpage.

8. The 2006-2007 Tulare County Grand Jury Report contained an investigation of EOCSD efficiency. The report concluded that the systems infrastructure was adequate and the service delivery is efficient. However, the mobile home that acts as the EOCSD office building was cited as inadequate and it was recommended that more seating be provided.

The District's inability to meet quorum makes it impossible for the District to make vital administrative, fiscal, personnel and purchasing decisions, some of which are necessary to address the serious issues facing district customers (e.g. follow-through on grant funding applications or examination of options available to address issues). This means that district customers essentially lack an official governing board who listens to their concerns and ideas and advocates on their behalf. As a result, it is determined that the District's current governing structure is inefficient and further compounds the District's chronic contamination issues, which has saddled district customers with an undue financial burden and put their health at risk.

Based on the numerous notices of violation citing failure to provide proof that customers were notified of contamination violations and the lack of detail in the District's annual CCR, it is further determined that District customers are not adequately informed of system contamination violations thereby increasing the risk to their health.

It is determined that the EOCSD must establish a website where basic information can be archived, such as meeting minutes, agendas, cancellation notices and also notices of violation. This will not only promote district transparency and accountability, but also minimize the health risk to customers by providing a means of informing them of contamination violations in a timely manner. The cost of creating and maintaining a webpage is a legitimate obstacle that must be considered. Financially strapped districts like the EOCSD; however, can work with districts in a similar situation to combine their resources and raise the funds necessary to create and maintain a very simple, no-frills webpage that will house basic information for each district such as minutes, agendas, notices of violation and cancellation notices. Alternatively, these districts can use their consolidated resources to pay another governmental agency (such as LAFCO or Tulare County) to house basic information for each district on their own website.

The District should also keep copies of all Environmental Health correspondences (notices of violation, compliance orders, etc.) and have them available for viewing at the District office, this way customers do not have to travel to Visalia to view these documents and are able to avoid the hassle of making a public records request. All efforts for transparency and customer education/noticing should take into account that large segment of the community that does not read or speak English. All documents and customer correspondences should be translated to Spanish whenever possible.

## **6) Other Matters Related to Effective or Efficient Service Delivery, As Required by Commission Policy**

### **Recommendations:**

The EOCS D is located in proximity to the Sultana CSD, Cutler PUD, Orosi PUD, the communities of Yettem and Seville (which possess their own wells and mutual water companies) and the Alta Irrigation District. The Alta ID is in the process of preparing a feasibility study examining the logistics and cost of providing treated surface water to the Cutler-Orosi area via area special district systems. The high concentration of special single-service districts makes consolidation logical and highly feasible.

Consolidation of the various districts would drastically increase the economies of scale of each, potentially reducing the rate charged to customers of the newly formed entity (386 EOCS D customers would join a pool of 15,000 to 20,000 customers). Consolidation would also expand the number of well sites available to all communities and Alta ID infrastructure could potentially be used to treat surface water, further expanding water supplies available to the region.

This approach is in line with USDA and California Department of Public health efforts to encourage water system consolidation and with CSD Law. Section 61000 (7) (c) (2) of CSD Law states that in enacting this division, it is the intent of the Legislature to encourage formation commissions (LAFCOs) to use their MSR, SOIs and boundary powers where feasible and appropriate, to combine special districts that serve overlapping or adjacent territory into multifunction services districts.

As mentioned in the informational section preceding these reports, MSR recommendations are not binding, but are rather intended to initiate a conversation about how best to approach the various challenges and discrepancies identified in the MSR. Recommendations are general in nature; detailed action plans will result from more focused feasibility studies or other planning documents.

Therefore, based on the data and determinations detailed above, the following general recommendations are provided:

- Consolidation should be examined. Some analysis is already being conducted by the Alta ID as part of their treated surface water feasibility study. Also, the Cutler PUD provides sewer service to the Sultana CSD, East Orosi CSD, and Orosi PUDs through a JPA agreement. This agreement can provide a framework for how consolidation could be implemented.
- Amending the current JPA to include water service should also be examined as an alternative to consolidation.
- Either approach should begin by conducting stakeholder meetings and workshops facilitated by Tulare LAFCO. Stakeholders include, but are not limited to, district board members and management, citizens groups, Tulare County Community Development Department and non-profit organizations such as Self-Help Enterprises Inc.

- Depending on the general consensus reached during stakeholder meetings, conduct a feasibility study that not only examines financial feasibility, but also infrastructural and governance hurdles.
- The goals of any approach must include system efficiency, improved water quality, long term viability and given the communities low-income condition, affordable water rates charged to customers must also be a prominent goal of the process.

One of the major obstacles to consolidation is the governance structure of the resulting entity; in particular, existing governing boards fear that the interests of their respective constituencies will no longer be advanced with the same vigor and empathy as before. This issue cannot be adequately addressed within the parameters of an MSR; however, it should be noted that Section 61030 (a) of the CSD law allows LAFCO to increase the number of members to serve on the initial board of directors of the resulting entity from 5 to 7, 9 or 11. Terms to be served by the new board of directors can also be set by LAFCO in accordance with Section 56886 (n). The expanded board of directors can be elected by division, with division boundaries being drawn according to community boundaries to ensure that customers of existing districts continue to have adequate representation on the new board.

# East Orosi Community Services District (as of 3/1/2007)

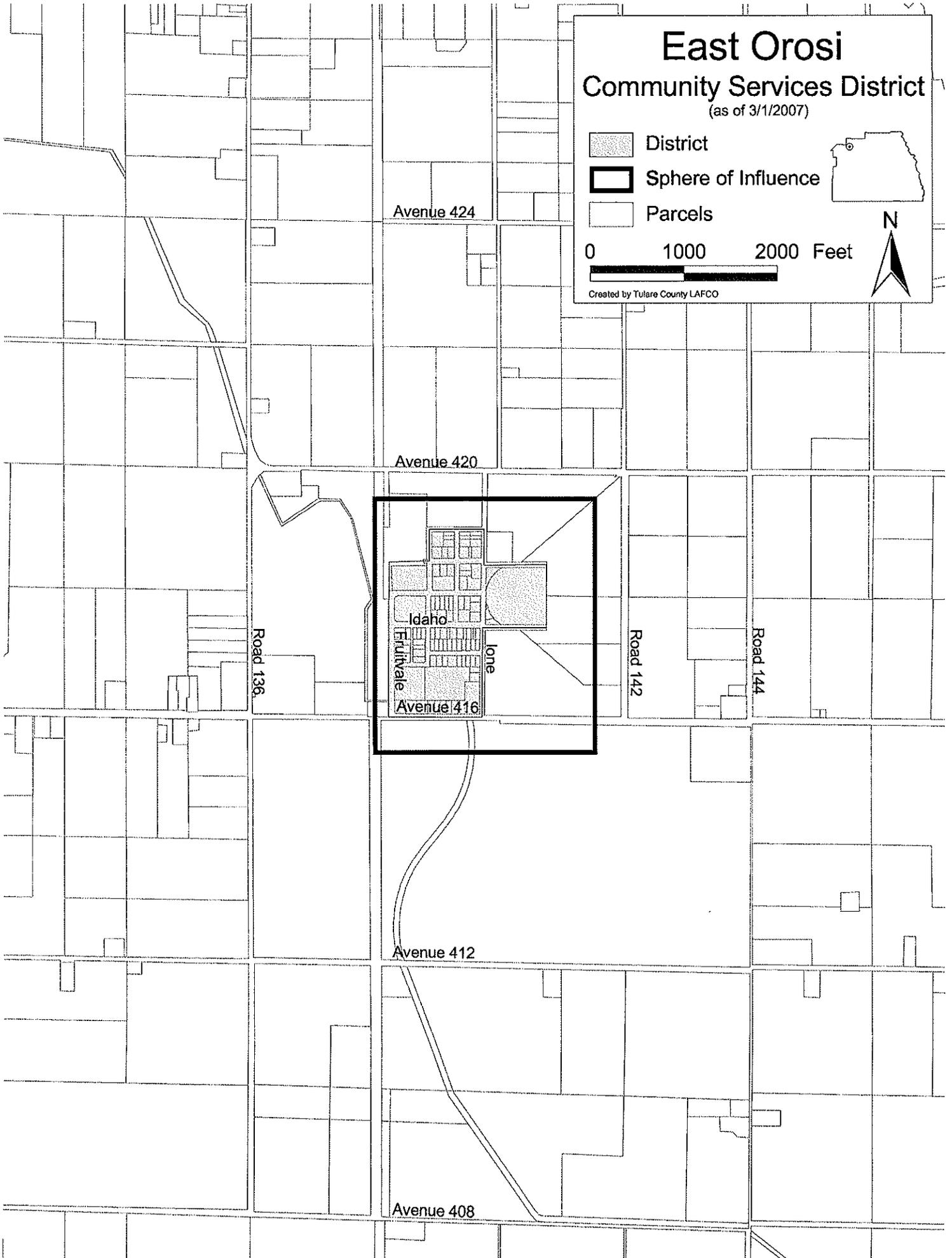
-  District
-  Sphere of Influence
-  Parcels



0 1000 2000 Feet



Created by Tulare County LAFCO



**Appendix C**

**SDWRCB, DDW Compliance Order No. 03-24-15R-001;  
East Orosi June 2016 Consumer Confidence Report**



EDMUND G. BROWN JR.  
GOVERNOR



MATTHEW RODRIGUEZ  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

**State Water Resources Control Board**  
Division of Drinking Water

November 9, 2015  
System No.: 5401003

Board of Directors  
East Oroshi Community Services District  
P.O. Box 213  
Oroshi, CA 93647

RE: Compliance Order No. 03-24-15R-001  
Violation of the Nitrate Maximum Contaminant Level

Dear Directors:

Enclosed is a Compliance Order issued to the East Oroshi Community Services District (Water System) public water system.

As directed in the enclosed Compliance Order, please provide recognition of receipt of this Compliance Order and the Water System's intent to comply with the Order to the Division of Drinking Water, Tulare District office by **November 30, 2015**.

If you have any questions regarding this letter or the enclosed Compliance Order, please contact the Tulare District office at (559) 447-3300.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Fischer".

Chad Fischer, P.E.  
Senior Sanitary Engineer, Tulare District  
SOUTHERN CALIFORNIA BRANCH  
DRINKING WATER FIELD OPERATIONS

CJF/MRC  
Enclosures

cc: Tulare County Environmental Health Division  
Mr. Tom Day, Contract Operator (P.O. Box 10642, Terra Bella, CA 93270)  
Mr. Juan Cano, Self Help Enterprises (8445 W. Elowin Ct, Visalia, CA 93291)

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CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD  
DIVISION OF DRINKING WATER

TO: East Orosi Community Services District  
ATTN: Board of Directors  
P.O. Box 213  
Orosi, CA 93647

COMPLIANCE ORDER NO. 03-24-15R-001  
FOR  
VIOLATION OF HEALTH AND SAFETY CODE SECTION 116655 (a)(1)  
AND THE PRIMARY DRINKING WATER STANDARD FOR NITRATE

Issued November 9, 2015

The State Water Resources Control Board (hereinafter "Board"), acting by and through its Division of Drinking Water (hereinafter "Division") and the Deputy Director for the Division (hereinafter "Deputy Director"), hereby issues this compliance order (hereinafter "Order") pursuant to Section 116655 of the California Health and Safety Code (hereinafter "CHSC") to the East Orosi Community Services District for violation of CHSC section 116555(a)(1) and Title 22, California Code of Regulations (hereinafter "CCR"), Section 64431.

1 **APPLICABLE AUTHORITIES**

2  
3 **CHSC, Section 116555(a)(1) states in relevant part:**

- 4 (a) Any person who owns a public water system shall ensure that the system does  
5 all of the following:  
6 (1) Complies with primary and secondary drinking water standards.

7 **CHSC, Section 116655 states in relevant part:**

- 8 (a) Whenever the department determines that any person has violated or is violating  
9 this chapter, or any permit, regulation, or standard issued or adopted pursuant  
10 to this chapter, the director may issue an order doing any of the following:  
11 (1) Directing compliance forthwith.  
12 (2) Directing compliance in accordance with a time schedule set by the  
13 department.  
14 (3) Directing that appropriate preventive action be taken in the case of a  
15 threatened violation.  
16 (b) An order issued pursuant to this section may include, but shall not be limited to,  
17 any or all of the following requirements:  
18 (1) That the existing plant, works, or system be repaired, altered, or added to.  
19 (2) That purification or treatment works be installed.  
20 (3) That the source of the water supply be changed.  
21 (4) That no additional service connection be made to the system.  
22 (5) That the water supply, the plant, or the system be monitored.  
23 (6) That a report on the condition and operation of the plant, works, system, or  
24 water supply be submitted to the department.

25  
26 **Title 22, CCR, Section 64431 (hereinafter "Section 64431"), states in relevant  
27 part:**

Public water systems shall comply with the primary MCLs in table 64431-A as  
specified in this article.

**Table 64431-A**  
**Maximum Contaminant Levels**  
**Inorganic Chemicals**

<i>Chemical</i>	<i>Maximum Contaminant Level, mg/L</i>
Aluminum	1.
Antimony	0.006
Nitrate	0.010
Asbestos	7 MFL*
Barium	1.
<i>Chemical</i>	<i>Maximum Contaminant Level, mg/L</i>
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.15
Fluoride	2.0
Hexavalent chromium	0.010
Mercury	0.002
Nickel	0.1
Nitrate (as NO <sub>3</sub> )	45.
Nitrate+Nitrite (sum as	10.
Nitrite (as nitrogen)	1.
Perchlorate	0.006
Selenium	0.05
Thallium	0.002

\* MFL=million fibers per liter; MCL for fibers exceeding 10 um in length.

Title 22, CCR Section 64432 (hereinafter "Section 64432") provides in relevant part:

**Section 64432.1**

(a) To determine compliance with the MCL for nitrate in Table 64431-A, all public water systems using groundwater and transient-noncommunity systems using approved surface water shall monitor annually, and all community and nontransient-noncommunity systems using approved surface water shall monitor quarterly.

(1) The water supplier shall require the laboratory to notify the supplier within 24 hours whenever the level of nitrate in a single sample exceeds the MCL, and shall ensure that a contact person is available to receive such analytical results 24-hours a day. The water supplier shall also require the laboratory to immediately notify the Division of any acute nitrate MCL exceedance if the laboratory cannot make direct contact with the designated contact person within 24 hours. Within 24 hours of notification, the water supplier shall:

(A) Collect another sample, and

1 (B) Analyze the new sample; if the average of the two nitrate sample results  
2 exceeds the MCL, report the result to the Division within 24 hours. If the  
3 average does not exceed the MCL, inform the Division of the results  
4 within seven days from the receipt of the original analysis.

(C) If a system is unable to resample within 24 hours, it shall notify the  
5 consumers by issuing a Tier 1 Public Notice pursuant to section 64463.1  
6 and shall collect and analyze a confirmation sample within two weeks of  
7 notification of the results of the first sample.

(2) For public water systems using groundwater, the repeat monitoring  
8 frequency shall be quarterly for at least one year following any one sample  
9 in which the concentration is greater than or equal to 50 percent of the MCL.  
10 After four consecutive quarterly samples are less than the MCL, a system  
11 may request that the Division reduce monitoring frequency to annual  
12 sampling.

13 **STATEMENT OF FACTS**

14 The Division is informed by the Water System and believes that the East Orosi  
15 Community Services District water system (hereinafter "Water System") is a  
16 community water system located in Tulare County that supplies water for domestic  
17 purposes to approximately 700 individuals through approximately 106 service  
18 connections. The Water System operates under Domestic Water Supply Permit No.  
19 03-12-14P-015 issued by the Division on August 27, 2014. The Water System is a  
20 community public water system as defined in CHSC, section 116275.

21 The Water System utilizes two groundwater wells as its sources of domestic water.  
22 Title 22, CCR, Division 4, Chapter 15, Article 4, establishes primary drinking water  
23 standards and monitoring and reporting requirements for inorganic constituents.  
24 Community and nontransient noncommunity water systems must comply with the  
25 maximum contaminant level for nitrate (as NO<sub>3</sub>) of 45.0 mg/L or 10 mg/L (as N), as  
26 established in Title 22 CCR Section 64431.  
27

1 A sample collected from the Water System on July 27, 2015, showed nitrate  
2 concentrations of 10.7 mg/L as N from Well 02 - West. Sample results from  
3 September 2012 to present are provided in Table 1 below:  
4

5 **Table 1: Nitrate Monitoring Results**

6 <b>Sample Date</b>	<b>Well 02 -West</b>
7 7/28/14	49.3 mg/L
8 10/20/14	49.5 mg/L
9 1/12/15	52.2 mg/L
10 4/15/15	48.2 mg/L
11 7/27/15	10.7 mg/L as N

12 Specifically, the Water System exceeded the nitrate MCL (10 mg/L as N) by  
13 delivering water to the distribution system that was over the nitrate MCL. The last  
14 sample result collected on July 27, 2015 was 10.7 mg/L.

15  
16 By regulation, public notification is required on a quarterly basis as long as the wells  
17 are being used. The Water System must also provide the Division with proof of  
18 public notification.  
19

#### 20 **DETERMINATIONS**

21 Based on the above Statement of Facts, the Division has determined that the Water  
22 System has violated CHSC, Section 116555 and Section 64431 in that the water  
23 produced by Well No. 02 - West, exceeded the nitrate MCL as shown in Table 1  
24 above, and further has determined that said violation has continued from July 27,  
25 2015 and through the date of this Order.  
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**DIRECTIVES**

The Water System is hereby directed to take the following actions:

1. On or before December 1, 2018, comply with Title 22, CCR, Section 64431 and remain in compliance.
2. On or before November 30, 2015, submit a written response to the Division indicating the Water System's agreement to comply with the directives of this Order and with the Corrective Action Plan addressed herein.
3. Commencing on the date of service of this Order, provide quarterly public notification in accordance with Attachment A, hereto, of the Water System's failure to meet the nitrate MCL (10.0 mg/L as N) during any calendar quarter that the sample results exceed the MCL.
4. Commencing on the date of service of this Order, submit proof of each public notification conducted in compliance with Directive No. 3, herein above, within 10 days following each such notification, using the form provided as Attachment B, hereto.
5. Commencing on the date of service of this Order collect quarterly samples for nitrate as N from Well No. 02 - West, as required by Section 64432(g), and ensure that the analytical results are reported to the Division electronically by the analyzing laboratory no later than the 10<sup>th</sup> day following the month in which the analysis was completed.

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6. Prepare for Division approval a Corrective Action Plan identifying improvements to the water system designed to correct the water quality problem (violation of the nitrate MCL) and ensure that the Water System delivers water to consumers that meets primary drinking water standards. The plan shall include a time schedule for completion of each of the phases of the project such as design, construction, and startup, and a date as of which the Water System will be in compliance with the nitrate MCL, which date shall be no later than December 1, 2018.
7. On or before **January 31, 2016**, present the Corrective Action Plan required under Directive No. 6, above, to the Division in person at the Division's offices located at 265 W. Bullard Avenue, Suite 101, Fresno, CA 93704.
8. Timely perform the Division approved Corrective Action Plan and each and every element of said plan according to the time schedule set forth therein.
9. On or before **April 10, 2016**, and every three months thereafter, submit a report to the Division in the form provided as Attachment C, hereto, showing actions taken during the previous calendar three months to comply with the Corrective Action Plan.
10. Not later than ten (10) days following the date of compliance with the nitrate MCL, demonstrate to the Division that the water delivered by Water System complies with the nitrate MCL.

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11. Notify the Division in writing no later than five (5) days prior to the deadline for performance of any Directive set forth herein if Water System anticipates it will not timely meet such performance deadline.

All submittals required by this Order shall be addressed to:

Chad Fischer, P.E., Senior Sanitary Engineer  
State Water Resources Control Board  
Division of Drinking Water, Tulare District  
265 W. Bullard Avenue, Suite 101  
Fresno, CA 93704

As used in this Order, the date of issuance shall be the date of this Order; and the date of service shall be the date of service of this Order, personal or by certified mail, on the Water System.

The Division reserves the right to make such modifications to this Order and/or to issue such further order(s) as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Order and shall be deemed effective upon issuance.

Nothing in this Order relieves Water System of its obligation to meet the requirements of the California SDWA, or any regulation, standard, permit or order issued thereunder.

1 **PARTIES BOUND**

2 This Order shall apply to and be binding upon Water System, its owners,  
3 shareholders, officers, directors, agents, employees, contractors, successors, and  
4 assignees.  
5

6  
7 **SEVERABILITY**

8 The Directives of this Order are severable, and Water System shall comply with  
9 each and every provision hereof, notwithstanding the effectiveness of any other  
10 provision.  
11

12  
13 **FURTHER ENFORCEMENT ACTION**

14 The California SDWA authorizes the Board to: issue a citation with assessment of  
15 administrative penalties to a public water system for violation or continued violation  
16 of the requirements of the California SDWA or any regulation, permit, standard,  
17 citation, or order issued or adopted thereunder including, but not limited to, failure to  
18 correct a violation identified in a citation or compliance order. The California SDWA  
19 also authorizes the Board to take action to suspend or revoke a permit that has been  
20 issued to a public water system if the public water system has violated applicable  
21 law or regulations or has failed to comply with an order of the Board; and to petition  
22 the superior court to take various enforcement measures against a public water  
23 system that has failed to comply with an order of the Board. The Board does not  
24 waive any further enforcement action by issuance of this Order.  
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Carl Carlucci, P.E., Chief  
Central California Section  
State Water Resources Control Board  
Division of Drinking Water

11-9-2015  
Date

Certified Mail No. 7015 1660 0000 0781 7841



**Attachments:**

- Attachment A: Applicable Authorities
- Attachment B: Public Notification Form
- Attachment C: Proof of Notification Form
- Attachment D: Quarterly Progress Report Form

cc: County of Tulare, Department of Environmental Health (w/o attachments)  
Mr. Tom Day, Contract Operator (P.O. Box 10642, Terra Bella, CA 93270)  
Mr. Juan Cano, Self Help Enterprises (8445 W Elwin Ct, Visalia, CA 93291)

# 2015 Consumer Confidence Report

Water System Name: EAST OROSI CSD

Report Date: June 2016

*We test the drinking water quality for many constituents as required by state and federal regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2015.*

**Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.**

**Type of water source(s) in use:** According to SWRCB records, this Source is Groundwater. This Assessment was done using the Default Groundwater System Method.

**Your water comes from 1 source(s):** Well 02 - WEST

For more information about this report, or any questions relating to your drinking water, please call (559) 528-2726 and ask for Lucy Rodriguez .

## TERMS USED IN THIS REPORT

**Maximum Contaminant Level (MCL):** The highest level of contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

**Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

**Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Primary Drinking Water Standards (PDWS):** MCLs and MRDLs for the contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

**Secondary Drinking Water Standards (SDWS):** MCLs for the contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

**Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

**Regulatory Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

**ppm:** parts per million or milligrams per liter (mg/L)

**ppb:** parts per billion or micrograms per liter ( $\mu\text{g/L}$ )

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**The sources of drinking water:** (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

**Contaminants that may be present in source water include:**

- *Microbial contaminants*, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the California Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Tables 1, 2, 3, 4, 5 and 6 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Department allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old.

Microbiological Contaminants (complete if bacteria detected)	Highest No. of Detections	No. of Months in Violation	MCL	MCLG	Typical Sources of Contaminant
Total Coliform Bacteria	1/mo. (2015)	0	no more than 1 positive monthly sample	0	Naturally present in the environment.

Any violation of MCL, AL or MRDL is highlighted. Additional information regarding the violation is provided later in this report.

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Sources of Contaminant
Sodium (ppm)	(2013)	17	N/A	none	none	Salt present in the water and is generally naturally occurring
Hardness (ppm)	(2013)	176	N/A	none	none	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Sources of Contaminant
Fluoride (ppm)	(2013)	0.2	N/A	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Nitrate as N (ppm)	(2015)	11.2	10.7 - 11.7	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits

minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/lead>.

## Summary Information for Violation of a MCL, MRDL, AL, TT, or Monitoring and Reporting Requirement

**About our Total Coliform Bacteria:** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

**About our Nitrate as N:** Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of Pregnant women.

**Systems with nitrate (as nitrogen) above 5 ppm (50% of the MCL), but below 10 ppm (the MCL):** Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

## 2015 Consumer Confidence Report Drinking Water Assessment Information

### Assessment Information

. source water assessment was conducted for the WELL 02 - WEST of the EAST OROSI C.S.D. water system in October, 2002.

Well 02 - WEST - is considered most vulnerable to the following activities not associated with any detected contaminants:  
Known Contaminant Plumes

### Discussion of Vulnerability

The activities to which the East Oroshi CSD water system is most vulnerable include known agricultural activity and drainage and septic systems. This system is over half the MCL of 45 ppm for nitrates with 33.7 ppm for Well 01 and 43.4 for Well 02. Nitrates can be associated with septic systems, agricultural use of fertilizers and concentrated animal facilities. Both wells are also within the pesticide management zones for Bromacil and Diuron.

It is important that septic systems be kept in good repair and pumped regularly. It is also necessary to keep the well site clean and free of weeds and debris to prevent contamination. The cement surface seal needs to be checked for cracks and immediately repaired or sealed.

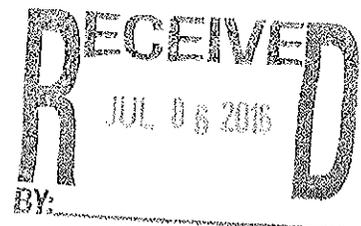
### Acquiring Information

A copy of the complete assessment may be viewed at:

Environmental Health Services  
5957 S Mooney Blvd  
Visalia, CA 93277

You may request a summary of the assessment be sent to you by contacting:

usan Shaw  
Environmental Health Specialist  
559-733-6441  
559-733-6932 (fax)  
sshaw@tularehhsa.org



Nitrate + Nitrite as N (ppm)	(2013)	9.1	N/A	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
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Any violation of MCL, AL or MRDL is highlighted. Additional information regarding the violation is provided later in this report.

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Sources of Contaminant
Chloride (ppm)	(2013)	16	N/A	500	n/a	Runoff/leaching from natural deposits; seawater influence
Specific Conductance (umhos/cm)	(2013)	456	N/A	1600	n/a	Substances that form ions when in water; seawater influence
Sulfate (ppm)	(2013)	16	N/A	500	n/a	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	(2013)	310	N/A	1000	n/a	Runoff/leaching from natural deposits

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	Notification Level	Typical Sources of Contaminant
Vanadium (ppm)	(2013)	0.04	N/A	0.05	The babies of some pregnant women who drink water containing vanadium in excess of the action level may have an increased risk of developmental effects, based on studies in laboratory animals.

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL (MRDL)	PHG (MCLG)	Violation	Typical Sources of Contaminant
Total Trihalomethanes (TTHMs) (ppb)	(2015)	4.6	N/A	80	n/a	No	By-product of drinking water disinfection

## Additional General Information on Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Lead Specific Language for Community Water Systems: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with the service lines and home plumbing. *East Orosi Community Services* is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to

**Appendix D**

**LAFCO Orosi Public Utilities District Municipal Services Review**

**DISTRICT:** Orosi Public Utility District

**ADDRESS:** 12488 Avenue 416, Orosi CA 93647

**PHONE:** (559) 528-4262

**FAX:** (559) 528-2770

**CONTACT:** Maria E. Vidana, Secretary

**E-MAIL:** [orosipud@sbcglobal.net](mailto:orosipud@sbcglobal.net)

**FUNCTIONS PERFORMED:** Provision of domestic water, sewer services, street lighting

**METHOD OF FINANCING:** Service charges, property taxes and property assessments

<b>BOARD OF DIRECTORS</b>	<b>SEAT</b>	<b>TERM OF OFFICE</b>
Anthony Rubalacaba	1	12/2/11 -12/4/15
Lucy Rodriguez	2	12/2/11 -12/4/15
Ronnie Castillo	3	12/4/09 -12/6/13
Johnny Sandoval	4	12/2/11 -12/4/15
Alex Marroquin	5	12/4/09 -12/6/13

<b>MEETING TIME:</b>
2 <sup>nd</sup> Tuesday of the month @7:30PM
<b>MEETING LOCATION:</b>
District office

<b>PRINCIPAL COUNTY</b>	TULARE	<b>POPULATION:</b>	7,318 <small>(Census - 4/1/00)</small>
<b>DISTRICT AREA</b>	888AC (1.39MI <sup>2</sup> )	<b>SOI AREA</b>	1,622AC (2.54MI <sup>2</sup> )
<b>FORMED</b>	November 1922	<b>LAFCO RESO.</b>	n/a
<b>LAST SOI AMEND.</b>	October 3, 2007	<b>LAFCO RESO.</b>	07-041, Case 1429

## CHAPTER 4 – OROSI PUD MUNICIPAL SERVICE REVIEW

### EXECUTIVE SUMMARY

This section provides an overview of the written determinations of the Orosi Public Utility District Municipal Service Review (MSR). As part of its review of municipal services, the Tulare County Local Agency Formation Commission (LAFCO) is required to prepare a written statement of its determination with respect to each of the following: 1) Growth and population projections for the affected area; 2) Infrastructure needs and deficiencies; 3) Financing constraints and opportunities; 4) Cost avoidance opportunities; 5) Opportunities for rate restructuring; 6) Opportunities for shared facilities; 7) Government structure options; 8) Evaluation of management efficiencies; and 9) Local accountability and governance. These requirements are established by AB 2838, the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Orosi PUD MSR identifies the following written determinations:

#### Written Determinations

##### 1) Growth and Population

1. Between 1990 and 2000, Orosi experienced an average annual population growth rate of approximately 2.9% compared to 0.6% for the unincorporated areas of Tulare County.
2. Assuming no development constraints, it can be expected that Orosi will continue to grow at an average annual rate between 2% and 3%, indicating the community would reach a year 2025 population between 12,000 and 15,300 residents.
3. District staff has indicated that they have been forced to reject six applications for annexation over the past three years due to inadequate sewer capacity. It was further indicated that five of the applications were immediately adjacent to the current District Boundary.
4. Consistent with the Urban Boundaries element of the Tulare County General Plan, the Cutler-Orosi UDB is, with minor exceptions, consistent with the external SOI for Cutler and Orosi.

##### 2) Infrastructure Needs and Deficiencies

###### *Domestic Water*

1. The Orosi PUD's water supply is derived from four existing deep underground wells that have a total maximum production efficiency of approximately 2,930 GPM, or 4.22 MGD. The District also has a water storage tank with a capacity of approximately 750,000 gallons.
2. A test well has been drilled, has proven successful, and the District has awarded a contract for the drilling of a new well (Well #10). The District also indicated a need to replace older asbestos cement distribution piping with larger diameter ductile iron piping, and that improvements will be implemented on a phased basis and dependent upon available funding.
3. The Orosi PUD water system supports 1,788 total connections to their water system including 1,639 residential connections, 132 commercial connections, 3 agricultural connections, and 14 connections which are inactive.

4. Water consumption data indicated that there was an immediate decrease (between 21% and 23%) in domestic water usage as a result of metering, which began January 2005. Since then, the District has billed customers based upon a metered usage. The District's implementation of water meters is indicative of the District's desire to promote water conservation, and continue to provide effective water service to its residents.
5. District staff has indicated that they are working with Alta Irrigation District officials to study the feasibility of constructing a regional water treatment facility that would use water from the Kings River by exchange out of the Friant-Kern Canal. The regional facility would potentially provide domestic water to the City of Dinuba, Cutler, Orosi, and other unincorporated communities in the region. A feasibility study would be a three to five year process, and project implementation could be ten to fifteen years out.
6. Assuming 1,800 equivalent dwelling units (EDUs), in order to meet Tulare County Improvement Standards the Orosi PUD water system would need to be capable of delivering a combined flow rate (from all source and storage facilities) of 3,400 GPM (1,500 GPM fire flow, and 1,900 GPM domestic demand) for a period of two hours while maintaining a minimum pressure of 25 PSI to each lot served; The District's water system is capable of delivering a combined source flow of approximately 8,660 GPM not including the well that pumps into the storage tank (approximately 6,250 GPM could be delivered for two hours from the 750,000 gallon storage tank, assuming the tank is full). The District's water system would need to be tested at actual system pressure to determine the actual amount of available capacity for domestic and fire flow.
7. Based upon a calculation performed in accordance with General Order 103, published by the California Public Utilities Commission, it is estimated that the District's water supply sources could support an additional 2,000 equivalent dwelling units. Special circumstances, i.e. distribution system pressure constraints, could significantly affect the available capacity, and a complete assessment should be completed by the District Engineer prior to the approval of additional connections.

#### *Sanitary Sewer*

1. According to District staff, the District's sanitary sewer collection system is very old and pipe leaks and breaks cause significant problems including groundwater inflow/infiltration and cross contamination with groundwater. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.
2. Treatment and disposal of the collected effluent is provided at the Cutler-Orosi WWTF, jointly owned and operated by the Cutler PUD and Orosi PUD. The Cutler-Orosi WWTF serves the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana.
3. The Cutler-Orosi WWTF operates under the provisions of Waste Discharge Requirements (WDR) Order No. 97-106, issued by the California RWQCB. According to JPWA staff, the WWTF has been certified by a registered civil engineer, and has a permitted capacity of 2.0 MGD.
4. As of March 2006, the Cutler-Orosi WWTF is operating under a Cease and Desist Order according to the RWQCB file. The RWQCB indicated that the Cutler-Orosi JPWA has

complied with the requirements of the Cease and Desist Order, and an order to rescind the Cease and Desist Order is expected to be completed in April 2006.

5. The average dry weather flow at the WWTF is approximately 1.40 MGD, with a historical high flow of 1.89 MGD. Flow at the WWTF is greater during winter months than in summer months due to inflow/infiltration of storm water into the collection system during winter months, and ex-filtration during dry summer months. The District will be able to more accurately predict the remaining capacity at the WWTF once repairs are made to leaking pipes throughout the collection system.
6. The Orosi PUD is currently allocated 2,162 equivalent dwelling units of capacity at the WWTF. The Orosi PUD is currently under a building moratorium, and has a waiting list for additional sewer connections.
7. The Cutler PUD and Orosi PUD are working with the Tulare County Redevelopment Agency to secure funding that will be used to correct deficiencies that would increase the capacity of the WWTF. Proposed improvements will modernize the facility and add capacity to bring the serviceable operational limits to 2.4 MGD.

### **3) Financing Constraints and Opportunities**

1. The District prepares a comprehensive and thorough annual budget that clearly describes the services provided to residents and the funds expended for those services.
2. The District's operating budgets (excluding reserve funds) for fiscal year 2005-06 totaled \$1,619,142 for sanitary sewer and \$2,039,270 for water service. The District's budget included contingency funds of \$17,500 and \$57,000 for sanitary sewer and domestic water service, respectively.
3. A review of the District's budget indicates that the District is in stable financial condition. The District's annual revenues cover the annual operating expenses of the District including reserve allocations and contingency appropriations.
4. It is likely that development within the District's SOI will rely on infrastructure available from the District. To increase its preparedness when such development is proposed, it is recommended that the District prepare and implement water and sewer system master plans.

### **4) Cost Avoidance Opportunities**

1. The District avoids excessive overhead costs by operating with part-time and full-time staff, which provides adequate levels of service to the small community. The District also avoids unnecessary costs by contracting out professional services including engineering, legal services, and other consulting services, and using these services on an as needed basis.
2. The District should continue to work with the development community to fund the construction of water and sewer infrastructure improvements that would serve new development sites as a way of avoiding unnecessary costs.
3. Master planning could help the District avoid unnecessary costs by allowing the District sufficient time to set aside funding needed for future capacity improvements that would allow for development within the community.

4. The District could also avoid unnecessary costs associated with the maintenance of capital infrastructure by promoting development in infill areas, and areas where infrastructure is already in place.

### **5) Opportunities for Rate Restructuring**

1. The Orosi PUD charges monthly user fees and new connection fees (capacity rights fees) for water and sewer. The District's fiscal year 2005-06 budget estimates revenues of \$380,000 and \$520,000 to be generated from water and sewer customer sales, respectively.
2. The monthly user fees for domestic water service are below average, while the connection fees (capacity rights fees) are slightly above average compared to other domestic water service providers in Tulare County. Water consumption data shows that there was an immediate decrease in water usage as a result of metering.
3. The monthly sewer rates and capacity rights fees charged by the District are above average compared to surrounding sewer service providers in Tulare County. The high sanitary sewer fees are likely attributable to the cost of improving the Cutler-Orosi WWTF and repairing the collection system.
4. The District should periodically review its monthly user fees and capacity rights fees to ensure that quality service will continually be provided to existing and future residents. Any rate increases should be substantiated and adopted through a public hearing process.
5. Fees paid by developers are placed into a restricted reserve account, funds which are ultimately used by the District to construct capital capacity improvements to the District's water and sewer systems. User fees are used for the operations of the District and the operation and maintenance of the District's infrastructure, including capital replacement costs.

### **6) Opportunities for Shared Facilities**

1. The Orosi PUD and Cutler PUD take advantage of shared infrastructure by operating a single WWTF through a JPWA comprised of three Board members from each District.
2. If the communities of Cutler and Orosi eventually become an incorporated City, the Districts will need to consider combining the existing infrastructure for domestic water service and sanitary sewer service. The District's will also need to consider adopting a uniform rate structure for all services of the City, should the Districts ultimately incorporate as a single City entity.

### **7) Government Structure Options**

1. If the communities of Cutler and Orosi become an incorporated City, it is likely that a single SOI which incorporates the areas within each District's current SOI would be established as a starting point. Incorporation would ultimately result in the dissolution of the Orosi PUD, as well as the Cutler PUD. Any changes in organization should be completed in accordance with LAFCO policies and procedures.

2. Prior to development within its SOI area the District should complete master planning to address the infrastructure needs of affected areas and funding mechanisms to meet those needs.
3. The District should continually expand and improve its domestic water and sanitary sewer infrastructure to accommodate development within its current District Boundary and SOI areas zoned for development with developer assistance.

## **8) Evaluation of Management Efficiencies**

1. Based upon information made available, it appears that the provision of domestic water service and sanitary sewer collection is managed in an efficient manner and meets the needs of the community and ratepayers.
2. The age of the District's sewer infrastructure is becoming an issue that the District needs to address in the short-term. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.
3. The Orosi PUD is governed by a five member Board of Directors elected at large from within its boundaries and is responsible for setting policy and general administrative procedures.
4. The District currently operates with a part-time and full-time staff and contracts out for other services, including engineering, legal counsel, accounting, and other consulting services.
5. The District's answering message provides contact information in case of emergencies as well as the District's hours of operation.

## **9) Local Accountability and Governance**

1. The District complies with the Brown Act open meeting law by holding regularly scheduled meetings in which the public is invited. Regularly scheduled meetings are held on the second Tuesday of each month at 7:30 p.m. Agendas for Board meetings are posted on-site at the District office.
2. The District adopts budgets and rate changes at hearings where the public is notified and invited.
3. The District should work with the Tulare County Resource Management Agency (RMA) and/or Tulare County LAFCO to have information regarding District affairs posted on the Tulare County RMA and/or LAFCO website. The District could provide information such as meeting times and locations, budgets, rates, ordinances, agendas, completed/upcoming projects, and other District affairs to Tulare County for posting on the County's (RMA and/or LAFCO) website.

## **4.0 OROSI PUBLIC UTILITY DISTRICT**

### **4.0.1 Background**

The requirement for LAFCO to conduct reviews of local municipal services was established with the passage of AB 2838 known as the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The bill passed the legislature, and was signed into law by Governor Davis on September 26, 2000. MSRs provide LAFCO with an additional tool to fulfill their statutory responsibilities of promoting orderly growth and development, preserving the States finite open space and agricultural land resources, and working to ensure that high quality public services are provided to all Californians in the most efficient and effective manner. MSRs are a requirement of State annexation law and are required to be completed before the consideration of a Sphere of Influence (SOI) amendment or once every five years when a SOI amendment is not being considered.

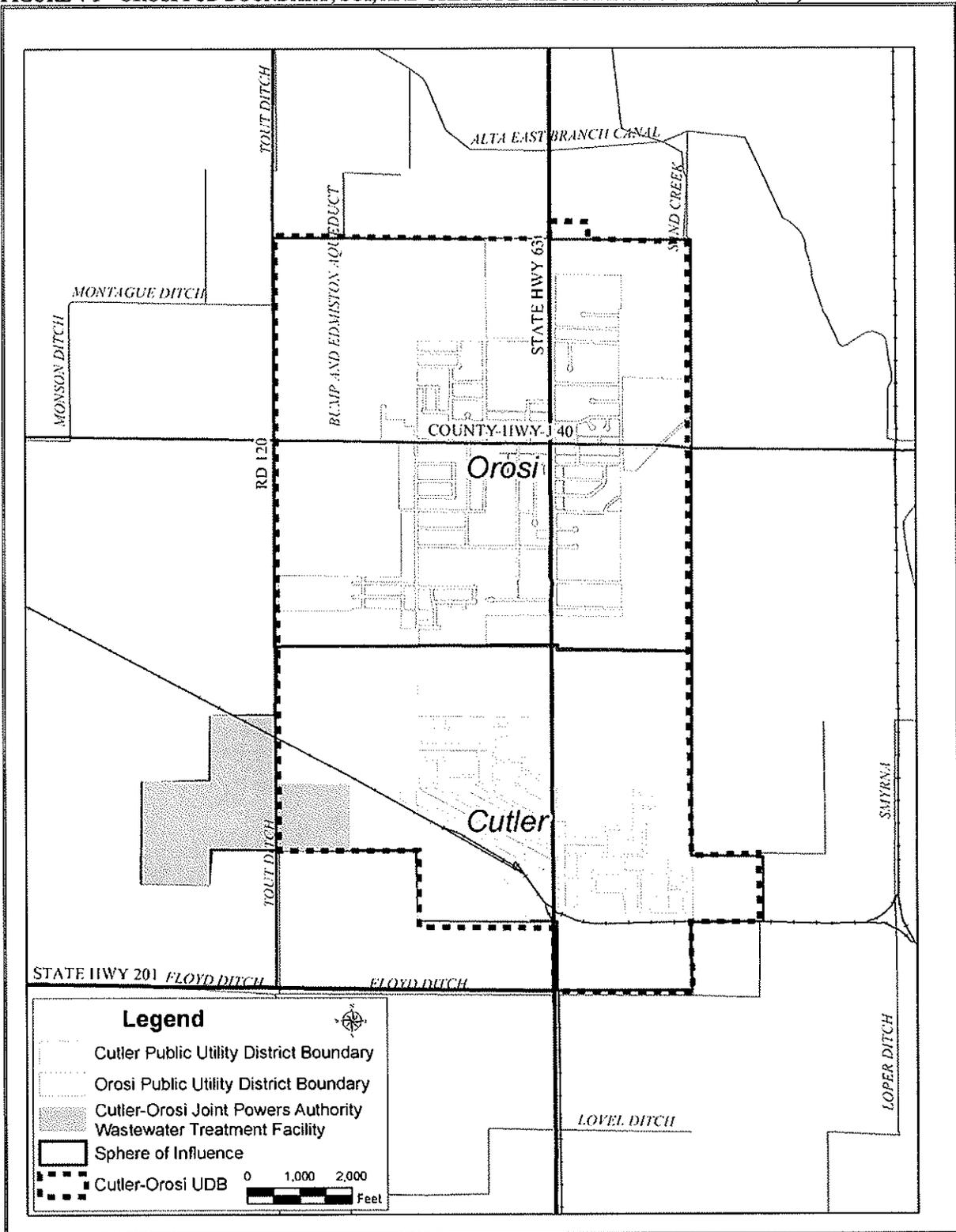
In July 2003 Tulare County LAFCO adopted an MSR exemption policy that identifies the agencies that would be subject to a review and the extent of that review. The agencies in Tulare County were divided into three (3) categories: agencies subject to a full comprehensive study; agencies subject to a questionnaire study; and agencies exempt from an MSR study. The Orosi Public Utility District (PUD) is subject to a full comprehensive study. The policy further identifies that the services subject to review shall be:

- Police protection
- Fire protection
- Water and wastewater
- Solid waste collection and disposal
- Streets and traffic circulation
- Power generation and distribution
- Health Care

Orosi, an unincorporated community in Tulare County, is located in the northern portion of the County, approximately five miles east of Dinuba and ten miles north of Visalia. The Orosi PUD, which was formed in December 1922, has a primary function of providing sanitary sewer and domestic water service for the community. Sanitary sewer and domestic water service are the primary services provided by the Orosi PUD that are subject to an MSR.

Orosi is located north of and adjacent to the community of Cutler. Orosi is an agriculturally oriented service community surrounded on the north, west and east by lands in agricultural production, vacant lands, and scattered residential homes. Cities and communities surrounding Orosi include Visalia to the south; Dinuba to the west; the community of Cutler to the south; and the community of East Orosi to the east. The Tulare County/Fresno County Line is located approximately 2.3 miles northwest of Orosi. The current District Boundary and the currently adopted SOI for Orosi are illustrated on Figure 4-1. Figure 4-1 also shows the Cutler-Orosi Urban Development Boundary and the Boundary of the Cutler-Orosi Joint Powers Authority wastewater treatment facility. These boundaries are further explained in subsequent sections of this report.

**FIGURE 4-1 – OROSI PUD BOUNDARY, SOI, AND URBAN DEVELOPMENT BOUNDARY (UDB)**



Source: Tulare County GIS Database

The following excerpt from the Tulare County LAFCO website ([www.co.tulare.ca.us/lafco/info.asp](http://www.co.tulare.ca.us/lafco/info.asp)) defines a SOI and the purpose it serves.

*A “Sphere of Influence” is the physical boundary and service area that a local governmental agency is expected to serve. Establishment of this boundary is necessary to determine which governmental agencies can provide services in the most efficient way to the people and property in any given area. The Sphere of Influence requirement also works to discourage urban sprawl by preventing overlapping of jurisdictions and duplication of services.*

The following discussions address the nine legislative factors required by the Cortese-Knox-Hertzberg Act; 1) Growth and population; 2) Infrastructure needs and deficiencies; 3) Financial constraints and opportunities; 4) Cost avoidance opportunities; 5) Opportunities for rate restructuring; 6) Opportunities for shared facilities; 7) Government structure options; 8) Evaluation of management efficiencies; and 9) Local accountability and governance.

## **4.1 GROWTH AND POPULATION**

The purpose of this section is to present historical and projected growth patterns and population projections to establish a baseline for the evaluation of the service needs of Orosi.

### **4.1.1 Historical Data**

The Census Bureau, on a decennial basis, identifies and provides detailed information on all incorporated Cities along with several smaller unincorporated communities (termed Census Designated Places – CDPs). In each Census, community profiles are developed and provide a wide range of information pertaining to population, demographics, housing information, household data, education and employment, income and poverty, and historical trends.

*Census 2000* data indicates that Orosi had a population of 7,318 as of January 2000. *Census 1990* data indicates that Orosi had a population of 5,486 corresponding to an average annual growth rate between 1990 and 2000 of approximately 2.9%. The unincorporated areas of Tulare County grew from a population of 133,222 in 1990 to a population of 141,150 in 2000, corresponding to an average annual growth rate of approximately 0.6%. Assuming no development constraints, it is likely the Orosi community will continue to grow at an average annual rate between 2% and 3%. Using an average annual growth rate between 2% and 3%, the Orosi community would reach a year 2025 population between 12,000 and 15,300 residents.

### **4.1.2 Annexation Applications**

District staff has indicated that they have been forced to reject six applications for annexation over the past three years due to inadequate sewer capacity. It was further indicated that five of the applications were immediately adjacent to the current District Boundary. The District indicated that proposed development within their SOI can opt to provide own sewer and water service due to a lack of capacity available from the District.

### **4.1.3 Planning Boundaries**

In addition to a SOI, which is defined by LAFCO as the "...physical boundary and service area that a local government agency is expected to serve..." an urban development boundary (UDB) has been established and designates the Cutler-Orosi urban area. Figure 4-1 shows the District Boundary and SOI in comparison to the District's UDB. The UDB is, for the most part, coterminous with the external SOI boundary of each District.

The Tulare County General Plan contains an Urban Boundaries Element which establishes goals for designating realistic planning areas around cities and unincorporated communities which could be used to help determine boundaries for community service districts and County service areas, in areas where differing levels of service are required, and within which corporate annexations may take place. The following are excerpts from the County of Tulare General Plan Policy Summary Section IUB.C.1 – Unincorporated Communities Policies.

*"Urban Development Boundaries are established around the following unincorporated communities in the County to serve as official urban planning areas for these communities: Cutler-Orosi, Ducor, Earlimart, East Orosi, Goshen, Ivanhoe, Lemon Cove, London, Pixley, Plainview, Poplar-Cotton Center, Richgrove, Strathmore, Terra Bella, Tipton, Traver, Woodville, Alpaugh, and Springville."*

*"A land use plan is to be developed for each community with an Urban Development Boundary, specifying desired densities and land use categories, with particular attention to defining suitable areas for the full range of urban development and rural residential development. Such plans shall include the entire area within the Boundary and shall recognize the short and long term ability of each community to provide necessary urban services within its Urban Development Boundary."*

Furthermore, the County of Tulare General Plan Policy Summary Sections 1UB.F.1. and 1UB.F.2. set forth policies with regard to "Boundary Consistency", and "Review and Revision of Boundaries." Excerpts from these sections of the County General Plan Policy Summary relating to special districts are reiterated below.

*"In areas where special districts provide rural as well as urban services, LAFCo should distinguish between "urban" and "rural" service areas for the purpose of establishing Spheres of Influence for such districts. If an unincorporated community is served by a special district, the Urban Development Boundary should be consistent with the district's "urban" Sphere of Influence."*

*"County census boundaries should be as consistent as possible with Urban Development Boundaries."*

*"Urban Area Boundaries and Urban Development Boundaries shall be reviewed at least once every five years to determine if boundary changes are justified, or if additional boundaries are needed for communities not included herein. However, a review may be conducted at any time on request of the affected city or agency."*

As indicated on Figure 4-1, the Cutler-Orosi UDB is, with minor exceptions, consistent with the external SOI for Cutler and Orosi. The County census boundary does not cover the entire area incorporated within the Orosi UDB area. Generally, the census boundary covers the urbanized area of the community, but does not cover areas in the northwest or northeast portions of the Orosi UDB area.

#### **4.1.4 Written Determinations**

1. Between 1990 and 2000, Orosi experienced an average annual population growth rate of approximately 2.9% compared to 0.6% for the unincorporated areas of Tulare County.
2. Assuming no development constraints, it can be expected that Orosi will continue to grow at an average annual rate between 2% and 3%, indicating the community would reach a year 2025 population between 12,000 and 15,300 residents.
3. District staff has indicated that they have been forced to reject six applications for annexation over the past three years due to inadequate sewer capacity. It was further indicated that five of the applications were immediately adjacent to the current District Boundary.
4. Consistent with the Urban Boundaries element of the Tulare County General Plan, the Cutler-Orosi UDB is, with minor exceptions, consistent with the external SOI for Cutler and Orosi.

## **4.2 INFRASTRUCTURE NEEDS AND DEFICIENCIES**

The purpose of this section is to evaluate the infrastructure needs and deficiencies of the Orosi PUD in terms of availability of resources, capacity to deliver services, condition of facilities, service quality, and levels of service.

### **4.2.1 Domestic Water**

The Orosi PUD is responsible for providing domestic water service within the District's Boundary. Orosi's water supply is derived from four deep underground wells located at various sites throughout the community. Three of the wells discharge into 10,000 gallon hydro-pneumatic pressure tanks, and one well discharges into a 750,000 gallon storage tank with booster pumps that discharge into a hydro-pneumatic pressure tank. The water from each supply source is chlorinated and then distributed throughout the system. Currently, 40% of the District's water distribution system consists of asbestos-concrete pipe ranging in size from 2" to 6" in diameter. Ultimately, the District has indicated the need to replace the existing AC lines with 8" ductile iron piping. District staff also indicated the production efficiency of the wells ranges between 520 and 850 gallons per minute (GPM) and that the four wells have a total maximum production efficiency of approximately 2,930 GPM, or 4.22 MGD. Two additional existing wells are currently inactive due to nitrate contamination. The District has awarded a contract for the drilling of a new well (Well #10).

The District explored the possibility of mixing the water supplies from wells (via elevated storage, or mixing tank with booster pumps), before entering the distribution system in order to use the two wells that are currently inactive due to high nitrate levels. The blending tank project was subsequently determined to be infeasible due to operational requirements.

The District indicated that the community water system (as of October 2004) supports 1,788 total connections including 1,639 residential connections, 132 commercial connections, 3 agricultural connections, and 14 connections which are inactive. The District's water system also supports 164 fire hydrants located throughout the community. The Orosi PUD water system has been fully metered as of January 1, 2005. Since then the District has billed customers based upon a metered usage. Water consumption data provided by District staff indicated that there was an immediate decrease in domestic water usage as a result of metering. Prior to water metering, the District experienced a peak month flow of 62.742 MG in July 2004 and a max day flow of 2.172 MGD. After metering was implemented by the District, a peak flow rate of 48.102 MG in July 2005 was observed with a max day flow of 1.706 MGD. This equates to a reduction of 23.3% in the peak month flow and a 21.5% reduction in the max day flow. The District's implementation of water meters is indicative of the District's desire to promote water conservation, and continue to provide effective water service to its residents.

District staff has indicated that they are working with Alta Irrigation District officials to study the feasibility of constructing a regional water treatment facility that would use water from the Kings River by exchange out of the Friant-Kern Canal. The regional facility would provide domestic water to the communities of Cutler and Orosi, and potentially the City of Dinuba and other unincorporated communities in the region. District staff indicated that a feasibility study would be a three to five year process, and that implementation of the project could be ten to fifteen years out.

Tulare County Improvement Standards require that the construction of water source facilities shall comply with the requirements of Bulletin No. 74, "Water Well Standards" prepared by the State of California Department of Water Resources. The Tulare County Improvement Standards also establish specific requirements for quantity and quality of water to be delivered to a system. Some of these requirements are summarized below.

- The quantity of water delivered to the distribution system within a subdivision from all source and storage facilities for a period of two hours shall be the maximum domestic demand plus a fire flow quantity of not less than 500 GPM for single family residential, 1,500 GPM for multi-family residential, commercial, and light manufacturing, and 2,500 GPM for heavy manufacturing.
- For systems up to 625 customer units (equivalent dwelling units) the domestic quantity shall not be less than  $Q = 100 + 25 * \sqrt{N}$ , and  $Q = 100 + N$  for more than 625 customer units at sufficient pressure to provide a minimum pressure of 25 PSI to each lot served; where Q equals the rate of flow in GPM delivered from the combined source facilities to the distribution system, and N equals the total number of customer units where each customer unit is equivalent to one for a single family dwelling on a normal subdivision lot. Other types of development shall be assigned appropriate customer unit values by the Engineer as experience with the distribution system or locality indicates.
- The minimum source and domestic demand storage design requirements shall be in accordance with Plate No. WS-11 of Section IV of the Tulare County Improvement Standards.
- The quality of water supplied for human consumption shall conform to Sections 3, 4 and 5 of the latest United States Public Health Service Drinking Water Standards. Samples will be taken and tests made by the County Department of Health Services for bacteriological determination of potability.
- Chemical and physical tests for potability shall be performed by a commercial laboratory certified by the State Department of Health Services for performance of chemical and physical analysis and the costs thereof shall be borne by the sub-divider.

Assuming 1,800 equivalent dwelling units (EDUs), in order to meet Tulare County Improvement Standards the Orosi PUD water system would need to be capable of delivering a combined flow rate (from all source and storage facilities) of 3,400 GPM (1,500 GPM fire flow, and 1,900 GPM domestic demand) for a period of two hours while maintaining a minimum pressure of 25 PSI to each lot served; The District's water system is capable of delivering a combined source flow of approximately 8,660 GPM not including the well that pumps into the storage tank (approximately 6,250 GPM could be delivered for two hours from the 750,000 gallon storage tank, assuming the tank is full). This indicates that the District's water system currently meets the requirements of the Tulare County Improvement Standards.

An estimate of water system capacity can be calculated by using General Order 103, published by the California Public Utilities Commission. For the estimated water system capacity, the total supply source available is compared to a calculated total supply source required. Other factors that may affect the capacity of water system, including but not limited to, water quality, low pressures, required storage, age of system, and pipeline restrictions, are not considered. The estimated supply source required is calculated using the following equation,

$$Q_{\text{Required}} = (N) * (C) * (F) \text{ where,}$$

N = Number of customers served

C = Gallon per minute constant: 5 to 9 for flat rate systems, 2 to 5 for metered systems

F = Factor to reflect diversity (inversely proportional to the number of customers)

Using an N value of 1,788, a C factor of 7.5 (due to the especially high dwelling unit occupancy rate in the community), and an F factor of 0.30, the estimated total supply source required is calculated to be 3,218 GPM. With a total well supply source available of 8,660 GPM (for a period of two hours, assuming the storage tank is full), it is estimated that the District's water supply, and storage facilities could support an additional 2,000 equivalent dwelling units. It should be noted that there could be special circumstances, i.e. distribution system pressure constraints, that could significantly affect this result, and a complete assessment should be completed by the District Engineer prior to the approval of additional connections. The water system would need to be tested at actual system pressure to determine the actual amount of available capacity for domestic and fire flow.

#### **4.2.2 Sanitary Sewer**

The Orosi PUD is also responsible for providing sanitary sewer collection to residents within its Boundary. According to District staff, the sewer collection system is very old and pipe leaks and breaks cause significant problems including groundwater inflow/infiltration and cross contamination with groundwater. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.

Treatment and disposal of the collected effluent is provided by the Cutler-Orosi Joint Powers Wastewater Authority (JPWA). In March 1980, the Orosi PUD entered into the Joint Wastewater Treatment and Disposal Facilities Agreement with the Cutler PUD, forming the Cutler-Orosi JPWA for the purpose of operating a wastewater treatment and disposal facility (WWTF). Under the terms of the agreement, the Orosi PUD owns 50% of the property and 60% of the plant and equipment used by the Authority. Each District is charged for its share of the costs to the Authority based upon its pro-rata share of gallonage flows into the facility. The governing board of the JPWA is made of three appointed members from the Orosi PUD Board of Directors and three appointed members from the Cutler PUD Board of Directors. The JPWA Board of Directors controls its own operations, including selection of management and approval of operating budgets. The separate boards of the Orosi PUD and Cutler PUD must approve capital expenditures.

The construction of the WWTF, completed in 1983, was funded by 75% from a cost grant from the Environmental Protection Agency, 12.5% from a cost grant from the State Water Resources Control Board, and 12.5% from proceeds of revenue bonds sales. The Joint Wastewater Treatment and Disposal Facility Amended Agreement between the two Districts states that all assets accumulated by the JPWA (other than cash, accounts receivable, prepaid expenses, and motor vehicles) shall be treated as owned by the Districts and in accordance with their participation in the JPWA. In addition, each District's allocated share of JPWA fixed assets is recorded and depreciated as part of property, plant and equipment, and its share of cash and all other assets are recorded as investment in the Cutler-Orosi JPWA.

The Cutler-Orosi WWTF serves the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana. The WWTF operates under the provisions of Waste Discharge Requirements (WDR) Order No. 97-106 issued by the California Regional Water Quality Control Board (RWQCB), Central Valley Region. Based upon discussions with the RWQCB, the Cutler-Orosi WWTF is also operating under a Cease and Desist (C&D) Order (No. 97-107), which is still in effect as of March 2006 according to the RWQCB file. According to the RWQCB, the Cutler-Orosi JPWA has complied with the requirements of the Cease and Desist Order, and the Board is in the process of preparing an order to rescind the Cease and Desist Order, which is expected to be completed in April 2006.

According to JPWA staff, the plant has been certified by a registered civil engineer, and has a permitted capacity of 2.0 MGD. According to the District Engineer, the historical high flow recorded at the WWTF was 1.89 MGD, and the average dry weather flow is approximately 1.40 MGD. The District Engineer

also noted that during dry months the sewer collection system experiences ex-filtration and during winter months the collection system experiences inflow/infiltration of storm water. The District will be able to more accurately predict the remaining capacity at the WWTF once repairs are made to leaking pipes throughout the collection system. The Orosi PUD entered into an agreement with the WWTF and is allowed to transport effluent to the treatment facility not to exceed 2,162 equivalent dwelling units. The Orosi PUD is currently under a building moratorium, and has a waiting list for additional sewer connections.

According to District staff, Tulare County Redevelopment Agency (TCRA) is working with the Cutler PUD and Orosi PUD to correct deficiencies that would increase the capacity of the treatment facility. The TCRA, on behalf of the Cutler-Orosi JPWA has submitted an application for Federal Assistance to construct improvements and additions at the Cutler-Orosi WWTF. The proposed project funding amounts to \$4,657,900, with a start date of February 2006, and an ending date of October 2009. The project represents the combined efforts by the Cutler PUD and the Orosi PUD to improve and upgrade the jointly operated WWTF, which involves:

- Improvements and additions to the plant headworks
- Improvements to the secondary clarifier
- Construction of a new secondary clarifier
- Construction of sludge drying beds
- Electrical improvements and installation of UV disinfection
- Effluent pump station capacity increase
- Land preparation and irrigation system
- Construction safety, mobilization and miscellaneous work

Several issues have caused the WWTF to reach its serviceable limits including age of system components, leaks in the collection system, and community growth. Until improvements at the WWTF are completed, both the Cutler PUD and Orosi PUD have restricted development within each community. The improvements will modernize the facility and add capacity to bring the serviceable operational limits to 2.4 MGD. Improving the wastewater treatment capabilities of the District will allow the community to expand its affordable housing stock and promote economic development opportunities.

#### **4.2.3 Written Determinations**

##### *Domestic Water*

1. The Orosi PUD's water supply is derived from four existing deep underground wells that have a total maximum production efficiency of approximately 2,930 GPM, or 4.22 MGD. The District also has a water storage tank with a capacity of approximately 750,000 gallons.
2. A test well has been drilled, has proven successful, and the District has awarded a contract for the drilling of a new well (Well #10). The District also indicated a need to replace older asbestos cement distribution piping with larger diameter ductile iron piping, and that improvements will be implemented on a phased basis and dependent upon available funding.
3. The Orosi PUD water system supports 1,788 total connections to their water system including 1,639 residential connections, 132 commercial connections, 3 agricultural connections, and 14 connections which are inactive.

4. Water consumption data indicated that there was an immediate decrease (between 21% and 23%) in domestic water usage as a result of metering, which began January 2005. Since then, the District has billed customers based upon a metered usage. The District's implementation of water meters is indicative of the District's desire to promote water conservation, and continue to provide effective water service to its residents.
5. District staff has indicated that they are working with Alta Irrigation District officials to study the feasibility of constructing a regional water treatment facility that would use water from the Kings River by exchange out of the Friant-Kern Canal. The regional facility would potentially provide domestic water to the City of Dinuba, Cutler, Orosi, and other unincorporated communities in the region. A feasibility study would be a three to five year process, and project implementation could be ten to fifteen years out.
6. Assuming 1,800 equivalent dwelling units (EDUs), in order to meet Tulare County Improvement Standards the Orosi PUD water system would need to be capable of delivering a combined flow rate (from all source and storage facilities) of 3,400 GPM (1,500 GPM fire flow, and 1,900 GPM domestic demand) for a period of two hours while maintaining a minimum pressure of 25 PSI to each lot served; The District's water system is capable of delivering a combined source flow of approximately 8,660 GPM not including the well that pumps into the storage tank (approximately 6,250 GPM could be delivered for two hours from the 750,000 gallon storage tank, assuming the tank is full). The District's water system would need to be tested at actual system pressure to determine the actual amount of available capacity for domestic and fire flow.
7. Based upon a calculation performed in accordance with General Order 103, published by the California Public Utilities Commission, it is estimated that the District's water supply sources could support an additional 2,000 equivalent dwelling units. Special circumstances, i.e. distribution system pressure constraints, could significantly affect the available capacity, and a complete assessment should be completed by the District Engineer prior to the approval of additional connections.

#### *Sanitary Sewer*

1. According to District staff, the District's sanitary sewer collection system is very old and pipe leaks and breaks cause significant problems including groundwater inflow/infiltration and cross contamination with groundwater. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.
2. Treatment and disposal of the collected effluent is provided at the Cutler-Orosi WWTF, jointly owned and operated by the Cutler PUD and Orosi PUD. The Cutler-Orosi WWTF serves the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana.
3. The Cutler-Orosi WWTF operates under the provisions of Waste Discharge Requirements (WDR) Order No. 97-106, issued by the California RWQCB. According to JPWA staff, the WWTF has been certified by a registered civil engineer, and has a permitted capacity of 2.0 MGD.
4. As of March 2006, the Cutler-Orosi WWTF is operating under a Cease and Desist Order according to the RWQCB file. The RWQCB indicated that the Cutler-Orosi JPWA has

complied with the requirements of the Cease and Desist Order, and an order to rescind the Cease and Desist Order is expected to be completed in April 2006.

5. The average dry weather flow at the WWTF is approximately 1.40 MGD, with a historical high flow of 1.89 MGD. Flow at the WWTF is greater during winter months than in summer months due to inflow/infiltration of storm water into the collection system during winter months, and ex-filtration during dry summer months. The District will be able to more accurately predict the remaining capacity at the WWTF once repairs are made to leaking pipes throughout the collection system.
6. The Orosi PUD is currently allocated 2,162 equivalent dwelling units of capacity at the WWTF. The Orosi PUD is currently under a building moratorium, and has a waiting list for additional sewer connections.
7. The Cutler PUD and Orosi PUD are working with the Tulare County Redevelopment Agency to secure funding that will be used to correct deficiencies that would increase the capacity of the WWTF. Proposed improvements will modernize the facility and add capacity to bring the serviceable operational limits to 2.4 MGD.

## **4.3 FINANCING OPPORTUNITIES AND CONSTRAINTS**

The purpose of this section is to evaluate the jurisdictions capability to finance needed improvements and services.

### **4.3.1 Annual Budget**

LAFCO should consider the ability of the District to pay for improvements or services associated with annexed sites. This planning can begin at the SOI stage by identifying what opportunities there are to identify infrastructure and maintenance needs associated with future annexation and development, and identifying limitations on financing such improvements, as well as the opportunities that exist to construct and maintain those improvements.

The fiscal year 2005-06 budget for the Oroshi PUD is organized into two separate funds: one for sanitary sewer and the other for domestic water. Based upon a review of the District's fiscal year 2005-06 budget, the District is in sound financial condition. The District's budget is well organized, thorough, and clearly articulates the District's future financial performance plans. The District prepares a traditional line item budget for each fund (sewer and water) that is divided into the following categories.

- Fund Balances
- Revenues
- Reserve Funds
- Expenses
  - Salaries and Employee Benefits
  - Services and Supplies
  - Other
  - Fixed Assets
  - Contingencies

The District adopts the budget each year and it is used as the spending plan for the District. The budget provides a framework for the District to address the following issues: reserves, revenues, expenditures, investments, and rates and fees.

The District's sanitary sewer budget for fiscal year 2005-06 identifies a beginning cash balance of \$4,263,079 and anticipated revenues of \$529,388 to be generated primarily from customer sales. Of the total resources available, \$3,173,325 is in restricted reserves leaving \$1,619,142 in total available funds. Restricted reserves are established by depreciation of equipment and facilities owned and operated by the District. Restricted reserves are not necessarily used annually, but instead they are used when specific equipment has depreciated to the point of needing replacement. The specific items for which restricted reserves are allocated are identified below.

- 1981 Revenue Bond
- Plant Replacement
- Connection Fees
- M&O Reserve
- Self Insurance
- Sewer Line Depreciation
- Line Cleaning Machine
- Truck Replacement
- Board Decisions Reserve

After accounting for restricted reserves from the District's budget, the remaining resources of \$1,619,142 covers salaries and employee benefits totaling \$102,819; services and supplies totaling \$335,100; other charges totaling \$20,752; fixed assets totaling \$1,142,971; and a contingency appropriation of \$17,500. The District typically requires developers to pay the cost of installing the local piping infrastructure to serve proposed developments.

Reviewing the District's budget for the current and previous fiscal years indicates that the District is financially stable with regard to its sewer fund. The District's annual revenues cover the annual operating expenses of the District including reserve allocations and contingency appropriations.

It is likely that development within the SOI will rely on infrastructure available from the District. For this reason the District should be prepared to accommodate such growth. The Orosi PUD should continue to work closely with the Cutler PUD to implement improvements that would increase the capacity of the WWTF, which would increase the District's ability to serve development within its SOI. The preparation and implementation of a sewer system master plan would also increase the District's preparedness when development within its SOI is proposed. A master plan would also identify existing deficiencies and make recommendations to correct such deficiencies. The District could potentially obtain funding assistance to prepare a master plan by applying for available State and/or Federal grants.

The District's water budget for fiscal year 2005-06 identifies a beginning cash balance of \$2,770,386 and anticipated revenues of \$398,000 (\$380,000 generated from customer sales, leak detection grant proceeds in the amount of \$12,000, and other revenues totaling \$6,000). Of the total resources available \$1,127,116 is in restricted reserves leaving \$2,041,270 in total available funds. Restricted reserves are established by depreciation of equipment and facilities owned and operated by the District. Restricted reserves are not necessarily used annually, but instead they are used when specific equipment has depreciated to the point of needing replacement. The specific items for which restricted reserves are allocated are identified below.

- Self Insurance
- Water Lines
- Customer Deposit
- Truck Replacement
- Computer
- Wells and Pumps
- Connection Fees

After accounting for restricted reserves from the District's budget, the remaining resources of \$2,039,270 covers salaries and employee benefits totaling \$295,640; services and supplies totaling \$242,800; other charges totaling \$100; fixed assets totaling \$1,443,830; and a contingency appropriation of \$57,000.

Reviewing the District's budget for the current and previous fiscal years indicates that the District is financially stable with regard to its water fund. It is likely that development within the SOI will rely on infrastructure available from the District. For this reason the District should be prepared to accommodate such growth. It is recommended that the District prepare and implement a water system master plan, which would increase its preparedness when development within its SOI is proposed.

The District's financial constraints involve the governmental structure and the desires of the people in the community to fund certain activities by establishing assessment districts or fees. The laws under which a Public Utility District is governed provide the structure for funding activities. Key revenue sources for the Orosi PUD include monthly sewer and water fees, connection (capacity rights) fees, interest on

reserves, and pass through monies. One-time revenues, that are pass-through funds, account for the increases and decreases in revenue from year to year. On the expenditures side, the District budgets for the services paid for by residents and provides for capital expenses using restricted reserve accounts.

#### **4.3.2 Written Determinations**

1. The District prepares a comprehensive and thorough annual budget that clearly describes the services provided to residents and the funds expended for those services.
2. The District's operating budgets (excluding reserve funds) for fiscal year 2005-06 totaled \$1,619,142 for sanitary sewer and \$2,039,270 for water service. The District's budget included contingency funds of \$17,500 and \$57,000 for sanitary sewer and domestic water service, respectively.
3. A review of the District's budget indicates that the District is in stable financial condition. The District's annual revenues cover the annual operating expenses of the District including reserve allocations and contingency appropriations.
4. It is likely that development within the District's SOI will rely on infrastructure available from the District. To increase its preparedness when such development is proposed, it is recommended that the District prepare and implement water and sewer system master plans.

## **4.4 COST AVOIDANCE OPPORTUNITIES**

The purpose of this section is to identify practices or opportunities that may help to eliminate unnecessary costs.

### **4.4.1 Fiscal Structure**

The District's budget process is designed to screen out unnecessary costs. A base budget is completed by the General Manager for review and discussion by the Board of Directors. Each year, the District's budget is reviewed with the District Board, District Engineer, and General Manager to ensure that the District continues to operate within the limits of its financial resources.

The District has adequate staff resources and administrative capabilities to provide the needed level of services to the residents within its boundaries. The District avoids excessive overhead costs by operating with a part-time and full-time administration, which provides adequate levels of service to the community. The District also avoids unnecessary costs by contracting out professional services including engineering, legal services, and other consulting services.

Generally, the District requires development projects to pay for their own infrastructure (water lines, sewer lines, fire protection, and lighting) to serve their projects. The District requires development projects to pay capacity rights fees currently set at \$2,400 and \$1,745 per equivalent dwelling unit (EDU) for water and sewer service connections, respectively. Capacity rights fees are used by the District to construct infrastructure capacity improvements (new wells, WWTF improvements, etc). The District should continue to work with the development community to fund the construction of water and sewer infrastructure improvements that would serve new development sites as a way of avoiding unnecessary costs.

The preparation of water and sewer system master plans could help the District avoid unnecessary costs associated with the construction of emergency system improvements to meet demands. Master plans identify infrastructure improvements that will be needed in the future, including an improvement timeline that would allow the District adequate time to set aside and/or obtain funding for those future improvements before the absence of such improvements begins to delay or halt proposed development. Master plans typically identify funding sources for their implementation.

If the SOI were expanded in the future, the District would assume fiscal responsibilities to construct or maintain the sewer and domestic water infrastructure associated with the SOI and any territories that were annexed. LAFCO should consider the relative financial and operational burden of new annexations to the District when it comes to its ability to provide water and sewer service, as well as capital maintenance and replacements required as a result of expanding the District Boundary. Opportunities exist at the time of annexation and development to introduce alternative methods of construction and maintenance of public or semi-public infrastructure to serve the future SOI/annexation areas.

### **4.4.2 Written Determinations**

1. The District avoids excessive overhead costs by operating with part-time and full-time staff, which provides adequate levels of service to the small community. The District also avoids unnecessary costs by contracting out professional services including engineering, legal services, and other consulting services, and using these services on an as needed basis.

2. The District should continue to work with the development community to fund the construction of water and sewer infrastructure improvements that would serve new development sites as a way of avoiding unnecessary costs.
3. Master planning could help the District avoid unnecessary costs by allowing the District sufficient time to set aside funding needed for future capacity improvements that would allow for development within the community.
4. The District could also avoid unnecessary costs associated with the maintenance of capital infrastructure by promoting development in infill areas, and areas where infrastructure is already in place.

## 4.5 OPPORTUNITIES FOR RATE RESTRUCTURING

The purpose of this section is to identify opportunities to positively impact rates without decreasing service levels.

### 4.5.1 Fee Structure

The Orosi PUD installed and started billing under a metered water system in January 2005. Water consumption data shows that there was an immediate decrease in water usage as a result of metering; therefore it also serves as a water conservation measure. The Orosi PUD charges a monthly flat rate for sewer service. The District's fiscal year 2005-06 budget estimates revenues of \$380,000 and \$520,000 to be generated from water and sewer customer sales, respectively. Tables 4-1 and 4-2 show a comparison of water and sewer rates and connection fees, respectively, for surrounding service providers. The tables also show the relationship between monthly service charges and average household incomes within the respective communities. Since some of the service providers charge a metered rate for water, it is necessary to calculate an average monthly bill based upon a specific amount of usage taken as 2,005 cubic feet, or approximately 15,000 gallons, per month for this analysis.

TABLE 4-1  
OROSI PUD COMPARISON OF WATER RATES

Service Provider	Sample Monthly Bill	Connection Fee	Average Household Income	Rate/Income Ratio
Earlimart PUD	\$12.50	\$1,500	\$1,775/mo.	0.70%
Ivanhoe PUD	\$9.50	\$1,700	\$2,171/mo.	0.44%
Pixley PUD	\$20.00	\$2,000	\$1,942/mo.	1.03%
Teviston CSD	\$30.00	\$800	\$2,014/mo.	1.49%
Tipton CSD	\$24.00	\$2,800	\$2,198/mo.	1.09%
Alpaugh JPA	\$55.00	\$1,500	\$1,974/mo.	2.79%
Cutler PUD	\$18.00	\$1,500	\$2,028/mo.	0.89%
<b>Orosi PUD</b>	<b>\$19.08</b>	<b>\$2,400</b>	<b>\$2,533/mo.</b>	<b>0.75%</b>
Lemon Cove SD	\$10.01	\$500	\$2,361/mo.	0.42%
London CSD	\$18.00	\$1,400	\$1,807/mo.	1.00%
Lindsay-Strathmore ID	\$14.18 <sup>7</sup>	T&M	\$2,096/mo.	0.68%
Poplar CSD	\$25.00	\$1,750	\$2,043/mo.	1.22%
Richgrove CSD	NA	NA	\$1,907/mo.	NA
Springville PUD	\$23.42	\$2,800	\$2,023/mo.	1.16%
Strathmore PUD	\$43.30	\$1,150	\$2,096/mo.	2.06%
Terra Bella ID	\$12.43 <sup>8</sup>	\$2,908	\$2,109/mo.	0.59%
Woodville PUD	\$27.28	\$2,000	\$2,123/mo.	1.28%
<b>Average</b>	<b>\$23.17</b>	<b>\$1,780</b>	<b>\$2,080/mo.</b>	<b>1.11%</b>

Notes: 1) Fee information obtained from service providers

2) Average household income based upon Census 2000 data

3) Rate/Income ratio calculated by dividing sample monthly bill by average household income

4) Sample monthly bill is calculated for a typical single family dwelling

5) NA=Not Available

6) T&M=Time and Material basis

7) Based on an average of four separate rates charged by the Lindsay-Strathmore Irrigation District

8) Based on potable water service provided by the Terra Bella Irrigation District

9) Richgrove CSD and Lindsay-Strathmore ID were omitted from the average calculations

As indicated in Table 4-1, the Orosi PUD charges monthly rates that are below average compared to surrounding domestic water service providers. The cost of domestic water service within Orosi equates to approximately 0.75% of the average household income within the community. The Orosi PUD water connection fee (capacity rights fee) is above average compared to other domestic water service providers throughout the County.

**TABLE 4-2  
OROSI PUD COMPARISON OF SEWER RATES**

<b>Service Provider</b>	<b>Monthly Sewer User Fee (1 EDU)<sup>1</sup></b>	<b>Connection Fee<sup>1</sup></b>	<b>Average Household Income<sup>2</sup></b>	<b>Rate/Income Ratio</b>
Goshen CSD	\$32.00	\$975	\$2,359/mo.	1.36%
Earlimart PUD	\$7.50	\$1,000	\$1,775/mo.	0.42%
Ivanhoe PUD	\$9.50	\$1,890	\$2,171/mo.	0.44%
Pixley PUD	\$15.00	\$1,800	\$1,942/mo.	0.77%
Tipton CSD	\$8.00	\$1,050	\$2,198/mo.	0.36%
Cutler PUD	\$22.00	\$3,520	\$2,028/mo.	1.08%
<b>Orosi PUD</b>	<b>\$22.97</b>	<b>\$1,745</b>	<b>\$2,533/mo.</b>	<b>0.91%</b>
Lemon Cove SD	\$4.50	\$500	\$2,361/mo.	0.19%
London CSD	\$21.00	\$1,990	\$1,807/mo.	1.16%
Poplar CSD	\$25.00	\$1,300	\$2,043/mo.	1.22%
Richgrove CSD	\$18.00	\$750	\$1,907/mo.	0.94%
Springville PUD	\$35.06	\$3,900	\$2,023/mo.	1.73%
Strathmore PUD	\$14.70	\$500	\$2,096/mo.	0.70%
Terra Bella SMD	\$21.00	\$500	\$2,109/mo.	1.00%
Woodville PUD	\$17.25	\$700	\$2,123/mo.	0.81%
<b>Average</b>	<b>\$18.23</b>	<b>\$1,475</b>	<b>\$2,098/mo.</b>	<b>0.87%</b>

1) Source: Wastewater User Charge Survey Report FY 2004-05 (Cal EPA – SWRCB, May 2005)

2) Source: Census 2000

As indicated in Table 4-2, the Orosi PUD charges monthly rates that are above average compared to surrounding sanitary sewer service providers. The cost of sanitary sewer service within Orosi equates to approximately 0.91% of the average household income within the community. The Orosi PUD sanitary sewer connection fee (capacity rights fee) is also above average compared to other sanitary sewer service providers throughout the County. The high sanitary sewer fees are likely attributable to the cost of improving the Cutler-Orosi WWTF and repairing the collection system.

The District should periodically review its monthly user fees, and capacity rights fees to ensure that quality service will continually be provided to existing and future residents. Often it is necessary to increase user fees and/or capacity rights fees to keep pace with cost of living increases and rising material and construction costs. Any rate increases should be substantiated and adopted through a public hearing process.

The District's budget is structured to segregate costs associated with the construction of infrastructure to accommodate new development. Fees paid by developers are placed into a restricted reserve account, funds which are ultimately used by the District to construct capital capacity improvements to the

District's water and sewer systems. User fees are used for the operations of the District and the operation and maintenance of the District's infrastructure, including capital replacement costs.

#### **4.5.2 Written Determinations**

1. The Orosi PUD charges monthly user fees and new connection fees (capacity rights fees) for water and sewer. The District's fiscal year 2005-06 budget estimates revenues of \$380,000 and \$520,000 to be generated from water and sewer customer sales, respectively.
2. The monthly user fees for domestic water service are below average, while the connection fees (capacity rights fees) are slightly above average compared to other domestic water service providers in Tulare County. Water consumption data shows that there was an immediate decrease in water usage as a result of metering.
3. The monthly sewer rates and capacity rights fees charged by the District are above average compared to surrounding sewer service providers in Tulare County. The high sanitary sewer fees are likely attributable to the cost of improving the Cutler-Orosi WWTF and repairing the collection system.
4. The District should periodically review its monthly user fees and capacity rights fees to ensure that quality service will continually be provided to existing and future residents. Any rate increases should be substantiated and adopted through a public hearing process.
5. Fees paid by developers are placed into a restricted reserve account, funds which are ultimately used by the District to construct capital capacity improvements to the District's water and sewer systems. User fees are used for the operations of the District and the operation and maintenance of the District's infrastructure, including capital replacement costs.

## **4.6 OPPORTUNITIES FOR SHARED FACILITIES**

The purpose of this section is to evaluate opportunities for a jurisdiction to share facilities and resources, thereby increasing efficiency.

### **4.6.1 Shared Facilities**

Since the location of the Orosi SOI Boundary is immediately adjacent to the Cutler SOI Boundary, opportunities for shared facilities and/or resources exist. The Orosi PUD and Cutler PUD take advantage of shared infrastructure by operating a single WWTF through a JPWA comprised of three Board members from each District.

In 2001, the communities of Cutler and Orosi submitted an application to Tulare County LAFCO to become an incorporated City. It was subsequently determined to be infeasible at the time, on the basis of insufficient tax revenues; however, should the two communities eventually become incorporated, restructuring the provision of sanitary sewer and domestic water services will be necessary. The two Districts will need to consider combining the existing infrastructure for domestic water service and sanitary sewer service. The District's will also need to consider adopting a uniform rate structure for all services of the City, should the Districts ultimately incorporate as a single City entity.

### **4.6.2 Written Determinations**

1. The Orosi PUD and Cutler PUD take advantage of shared infrastructure by operating a single WWTF through a JPWA comprised of three Board members from each District.
2. If the communities of Cutler and Orosi eventually become an incorporated City, the Districts will need to consider combining the existing infrastructure for domestic water service and sanitary sewer service. The District's will also need to consider adopting a uniform rate structure for all services of the City, should the Districts ultimately incorporate as a single City entity.

## **4.7 GOVERNMENT STRUCTURE OPTIONS**

The purpose of this section is to consider the advantages and disadvantages of various government structures to provide public services.

### **4.7.1 Development within SOI Areas**

One of the most critical elements of LAFCO's responsibilities is in setting logical service boundaries for communities based on their capability to provide services to affected lands. According to the LAFCO Municipal Service Review Guidelines, elimination of overlapping boundaries that confuse the public and cause service inefficiencies should be considered to avoid unnecessary increases in the cost of infrastructure. Currently there are no foreseeable conditions that would indicate that development within the District's SOI would result in a change in government structure.

It should be noted that although the current SOI boundary for the Orosi PUD and Cutler PUD are adjacent, there are no boundary conflicts between the Districts (reference Figure 4-1). In 2001 the communities of Orosi and Cutler submitted an application to LAFCO to become an incorporated City; however, it was subsequently determined to be infeasible because the combined tax revenue between the communities was insufficient to maintain the minimally acceptable un-appropriated reserve fund required for incorporation. However, incorporation may be feasible in the future for both communities and the procedures for incorporation are clearly identified in LAFCO guidelines.

Tulare County LAFCO has adopted specific policies for reviewing proposals for a change in organization, reorganization, incorporations, dissolution and other proposals processed by Tulare County LAFCO. Tulare County LAFCO policy C-1 identifies factors and standards to be considered in review proposals including additional requirements for City annexations, standards for annexation to special districts, standards for the formation of special districts, and standards for City incorporation.

Tulare County LAFCO policy C-2 outlines general procedures for changes in boundaries or organization to be processed by LAFCO. Generally, proposals for changes in boundaries, formations, or changes of organization can be submitted for the consideration of LAFCO by petition of the registered voters or affected landowners; however, prior to the circulation of any petition, a "Notice of Intent to Circulate" must be presented to the LAFCO Executive Officer. A proposal may also be initiated by a resolution adopted by the governing body of any related public body (county, city or special district). The proposal must be submitted on forms available from the LAFCO staff office, or on the LAFCO website, along with the applicable number of maps, legal descriptions, and filing fees to cover the proposal submitted.

Prior to development within its SOI area, the District should complete infrastructure planning – including master plans – to address the infrastructure needs of affected areas and funding mechanisms to meet those needs. The District and/or County could also require developers to prepare specific plans prior to approving development within the District's SOI. The District should continually expand and improve its water and sewer infrastructure to accommodate development within its current District Boundary and SOI expansion areas with developer assistance.

### **4.7.2 Written Determinations**

1. If the communities of Cutler and Orosi become an incorporated City, it is likely that a single SOI which incorporates the areas within each District's current SOI would be established as a starting point. Incorporation would ultimately result in the dissolution of the Orosi PUD, as well as the Cutler PUD. Any changes in organization should be completed in accordance with LAFCO policies and procedures.

2. Prior to development within its SOI area the District should complete master planning to address the infrastructure needs of affected areas and funding mechanisms to meet those needs.
3. The District should continually expand and improve its domestic water and sanitary sewer infrastructure to accommodate development within its current District Boundary and SOI areas zoned for development with developer assistance.

## **4.8 EVALUATION OF MANAGEMENT EFFICIENCIES**

The purpose of this section is to consider the management structure of the jurisdiction.

### **4.8.1 Organizational Structure**

Based upon a review of information provided by the Orosi PUD, it appears that the provision of domestic water service and sanitary sewer collection are managed in an efficient manner, meeting the needs of the community and ratepayers. The Orosi PUD has accounting and finance functions, current personnel regulations and resolutions. The District undergoes annual audits in compliance with auditing standards.

The age of the District's sewer infrastructure is becoming an issue that the District needs to address in the short-term. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.

The Orosi PUD is governed by a five-member Board of Directors elected at large from within its boundaries that is responsible for setting policy and general administrative procedures. It should be noted that three of these board members also serve on the Cutler-Orosi JPWA. The District currently operates with part-time and full-time staff, and contracts out for other services, including engineering, legal counsel, accounting, and other consulting services. The District operates from 8:00 a.m. to 5:00 p.m., Monday through Friday. The District's answering message provides the public with the operational hours of the District and contact information in case of emergencies.

Based upon the District's 2005-06 budget approximately \$74,500 was appropriated for contingencies. Contingency funds can be used for emergency improvements and/or unforeseen replacement or rehabilitation costs.

### **4.8.2 Written Determinations**

1. Based upon information made available, it appears that the provision of domestic water service and sanitary sewer collection is managed in an efficient manner and meets the needs of the community and ratepayers.
2. The age of the District's sewer infrastructure is becoming an issue that the District needs to address in the short-term. The District is implementing a phased sewer collection system rehabilitation/replacement project, and has awarded a contract for the construction of the phase 1 improvements.
3. The Orosi PUD is governed by a five member Board of Directors elected at large from within its boundaries and is responsible for setting policy and general administrative procedures.
4. The District currently operates with a part-time and full-time staff and contracts out for other services, including engineering, legal counsel, accounting, and other consulting services.
5. The District's answering message provides contact information in case of emergencies as well as the District's hours of operation.

## **4.9 LOCAL ACCOUNTABILITY AND GOVERNANCE**

The purpose of this section is to evaluate the accessibility and levels of public participation associated with the Orosi PUD's decision-making processes.

### **4.9.1 Public Access and Information Methods**

LAFCO may consider the agency's record of local accountability in its management of community affairs as a measure against the ability to provide adequate services to the SOI and annexation areas.

The Orosi PUD has a five member Board of Directors elected by voters residing within the Districts Boundary. Regularly scheduled Board meetings, which are open to the public, are held on the second Tuesday of each month at 7:30 p.m. at the District office located at 12488 Avenue 416 in Orosi. Agendas for Board meetings are posted and notices provided consistent with public meeting requirements (i.e. the Brown Act) including posting on-site. The District adopts budgets and rate changes at hearings where the public is notified and invited.

The District should work with the Tulare County Resource Management Agency (RMA) and/or Tulare County LAFCO to have information regarding District affairs posted on the Tulare County RMA and/or LAFCO website. The District could provide information such as meeting times and locations, budgets, rates, ordinances, agendas, completed/upcoming projects, and other District affairs to Tulare County for posting on the County's (RMA and/or LAFCO) website. It would make sense to post information regarding District affairs on County websites, since Orosi is an unincorporated community within Tulare County, and there is a mutual interest in the community.

The internet is a relatively low-cost yet powerful method of involving the general public/customers/ratepayers in District affairs. Greater dissemination of information can lead to greater interest in attending Board meetings and participating in elections. It also allows the public, some of whom are not physically able to attend Board meetings, to follow District activities remotely from their home or business.

### **4.9.2 Written Determinations**

1. The District complies with the Brown Act open meeting law by holding regularly scheduled meetings in which the public is invited. Regularly scheduled meetings are held on the second Tuesday of each month at 7:30 p.m. Agendas for Board meetings are posted on-site at the District office.
2. The District adopts budgets and rate changes at hearings where the public is notified and invited.
3. The District should work with the Tulare County Resource Management Agency (RMA) and/or Tulare County LAFCO to have information regarding District affairs posted on the Tulare County RMA and/or LAFCO website. The District could provide information such as meeting times and locations, budgets, rates, ordinances, agendas, completed/upcoming projects, and other District affairs to Tulare County for posting on the County's (RMA and/or LAFCO) website.

**Appendix E**

**Excerpts, 2014-2015 Audit,  
East Oroshi Community Services District**

**SANBORN & SANBORN ACCOUNTANCY CORPORATION**  
CERTIFIED PUBLIC ACCOUNTANTS

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1423 Eleventh Street  
P O Box 1057  
Reedley CA 93654

(559) 638-8600  
(800) 464-5711  
Fax (559) 638-8700

INDEPENDENT AUDITOR'S REPORT

October 30, 2015

Board of Directors  
East Orosi Community Services District  
Orosi, California

**Report on the Financial Statements**

We have audited the accompanying financial statements of the business-type activities of East Orosi Community Services District, State of California, as of and for the year ended June 30, 2015 and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

**Auditor's Responsibility**

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable in financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

**EAST OROSI COMMUNITY SERVICES DISTRICT  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
FOR THE YEAR ENDED JUNE 30, 2015**

As management of East Orosi Community Services District, we offer readers of the District's financial statements this narrative overview and analysis of the financial activities of the District for the fiscal year ended June 30, 2015. We encourage readers to consider the information presented here in conjunction with information that is included within the financial statements.

**Financial Highlights**

- Assets of the District exceeded its liabilities as of June 30, 2015 by \$251,348. Of this amount, unrestricted net position of \$34,632 may be used to meet the District's ongoing obligations to customers and creditors. As of June 30, 2014, assets exceeded liabilities by \$225,008 with unreserved and unrestricted net position equaling \$12,976.
- Total net position increased by \$26,340 for the year ended June 30, 2015. For the year ended June 30, 2014, total net position increased by \$2,120.
- During the current year, the District's fixed assets increased by a net of \$4,684. This increase was entirely attributable an increase in construction in progress of \$31,413 less depreciation. Depreciation expense, the ratable amortization of the cost of fixed assets, amounted to \$26,729 for the current year. Prior year depreciation was \$26,729.
- Total debt decreased by a net of \$19,774 during the current year. The decrease was mostly attributable to a decrease in bonds payable of \$3,000 and a decrease in the note payable of \$21,388. During the prior year, total debt increased by a net of \$44,897. This was mostly due to the increase in the note payable of \$49,247, a decrease in accounts payable and accrued expense of \$1,350 and the payment of bonds payable of \$3,000.

**Overview of the Financial Statements**

This discussion and analysis is intended to serve as an introduction to East Orosi Community Services District's basic financial statements. The District's basic financial statements are comprised of three components: 1) government-wide financial statements, 2) fund financial statements and 3) notes to the financial statements. This report also contains other supplementary information in addition to the basic financial statements.

**Government-wide financial statements.** The government-wide financial statements are designed to provide readers with a broad overview of the District's finances, in a manner similar to a private-sector business.

The statement of net position presents information on all of the District's assets and liabilities, with the two reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the District is improving or deteriorating.

EAST OROSI COMMUNITY SERVICES DISTRICT  
 PROPRIETARY FUND  
 COMPARATIVE STATEMENT OF NET POSITION  
 JUNE 30, 2015 AND 2014

	Business-Type Activities – Enterprise Fund	
	2015	2014
Assets		
Current assets		
Cash on hand	\$ 943	\$ 40,398
Cash in bank	45,454	80,771
Cash in county treasury	77,173	6,399
Accounts receivable	5,880	127,568
Total current assets	129,450	127,568
Other assets		
Capital assets (net of allowance for depreciation)	204,191	199,507
Total assets	333,641	327,075
Liabilities		
Current liabilities		
Accounts payable and accrued expense	9,764	5,150
Note payable	41,529	62,917
Current portion of bonds payable	3,000	3,000
Total current liabilities	54,293	71,067
Noncurrent liabilities		
Bonds payable	31,000	34,000
Less current portion	(3,000)	(3,000)
Total noncurrent liabilities	28,000	31,000
Total liabilities	82,293	102,067
Net Position		
Invested in capital assets, net of related debt	204,191	199,507
Restricted	12,525	12,525
Unrestricted	34,632	12,976
Total net position	\$ 251,348	\$ 225,008

See accompanying notes to financial statements.

EAST OROSI COMMUNITY SERVICES DISTRICT  
WATER ENTERPRISE ACTIVITY  
COMPARATIVE STATEMENT OF REVENUE AND EXPENSE  
FOR THE YEARS ENDED JUNE 30, 2015 AND 2014

	<u>2015</u>	<u>2014</u>
Operating revenue		
Charges for service	\$ 22,496	\$ 21,135
Operating grant	5,348	4,057
Other	<u>1,207</u>	<u>938</u>
Total operating revenue	<u>29,051</u>	<u>26,130</u>
Operating expense		
Utilities	14,255	10,579
Purchased water	6,610	6,906
Salaries and wages	5,866	5,866
Repairs and maintenance	4,365	2,971
Dues and subscriptions	2,678	372
Legal and professional	2,116	3,353
Testing	1,670	3,332
Depreciation and amortization	1,313	1,313
Office supplies and postage	733	823
Employee benefits	581	538
Insurance	519	477
Communications	346	331
Miscellaneous	310	304
Director fees	<u>169</u>	<u>365</u>
Total operating expense	<u>41,531</u>	<u>37,530</u>
Net operating income/(loss)	<u>(12,480)</u>	<u>(11,400)</u>
Nonoperating revenue/(expense)		
Capital grant revenue	57,395	35,833
Interest revenue	423	408
Property taxes	188	196
Interest expense	<u>(2,866)</u>	<u>(1,261)</u>
Net nonoperating revenue/(expense)	<u>55,140</u>	<u>35,176</u>
Change in net position	<u>\$ 42,660</u>	<u>\$ 23,776</u>

See accompanying notes to financial statements.

**Appendix F**

**Geohydrologist Report, East Orosi Community Services District  
Test Well, Avenue 408, Tulare County**

KENNETH D. SCHMIDT AND ASSOCIATES

GROUNDWATER QUALITY CONSULTANTS

600 WEST SHAW AVE., SUITE 250

FRESNO, CALIFORNIA 93704

TELEPHONE (559) 224-4412

August 18, 2016

Mr. Harry Tow  
Quad Knopf Inc.  
901 East Main Street  
Visalia, CA 93292

Re: E. Orosi CSD Test Well

Dear Harry:

During July 20-28, Johnson Drilling Co. of Reedley completed a casing hammer test well to a depth of 590 feet. We logged the drill cuttings and prepared a geologic log, which is attached. Alluvial deposits were encountered to a depth of 588 feet and hardrock was encountered below that depth. The deposits above a depth of 391 feet were primarily brown in color. Blue or gray-green deposits were present from 391 to 421 feet in depth. Gray or brown deposits were present from 421 to 453 feet in depth. Green deposits were predominant below a depth of 453 feet, except for a black sand from 568 to 572 feet in depth. Fine-grained layers that could function as confining beds below a depth of 180 feet were present in the following depth intervals:

181 to 255 feet	333 to 352 feet
265 to 281 feet	421 to 431 feet.

Depth to water ranged from 89 to 100 feet at the time of drilling. Water samples were collected from a total of 10 different depth intervals by airlifting. A submersible pump was installed at two of these intervals (255 to 260 feet and 394 to 400 feet in depth) to allow collection of pumped samples. The water samples were preserved and hand delivered to APPL, Inc. in Clovis for analyses of inorganic and trace organic constituents. Samples for radiological analyses were preserved and shipped to FGL Environmental in Santa Paula.

Total dissolved solids (TDS) concentrations ranged from 236 to 460 mg/l. The lowest TDS concentrations (less than 280 mg/l) were present between 255 and 357 feet and 453 and 496 feet in depth. Nitrate concentrations generally decreased with increasing depth, and were all less than the MCL of 45 mg/l. Nitrate concentrations in samples from below a depth of 255 feet were 15 mg/l or

KENNETH D. SCHMIDT AND ASSOCIATES  
GROUNDWATER QUALITY CONSULTANTS

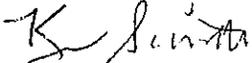
2

less. Iron and arsenic concentrations were well below the respective MCLs of 0.3 mg/l and 10 ppb. Manganese concentrations ranged from less than 0.01 to 0.21 mg/l. Concentrations exceeded the recommended MCL of 0.05 mg/l in samples from 173 to 179 feet, 394 to 458 feet, and for 572 to 577 feet in depth. Alpha activities in all of the samples were less than the MCL. DBCP, EDB, and 1,2,3-TCP concentrations were non-detectable in all of the samples.

A new well can be constructed at the site. I recommend not tapping strata below a depth of 570 feet and between 390 and 430 feet in depth. Blank casing would be installed from the surface to 255 feet, from 390 to 430 feet, and from 570 to 590 feet in depth. Louvered casing would be installed from 255 to 390 feet and 430 to 570 feet in depth. Gravel would be placed from 590 feet up to a depth of 230 feet. A gravel feed tube would be installed from 235 feet in depth to the surface. An annular seal would then be placed from 230 feet to the surface. Sieve analyses of fine sands by Roscoe Moss Co. indicate that a slot size of 0.06 inch and gravel gradation of 8x16 should be used. Such a well would tap about 140 feet of coarse-grained water producing deposits. A properly constructed and developed well should produce about 1,200 to 1,400 gpm.

Please call me if you have any questions.

Sincerely yours,

  
Kenneth D. Schmidt

KDS/cl

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL

Depth (feet)	Description
0 - 6	Red-brown sandy silt
6 - 12	Red-brown fine to medium sand
12 - 32	Red-brown sandy clay
32 - 41	Red-brown silty fine sand
41 - 85	Brown silt
85 - 91	Brown silty clay
91 - 101	Brown clay
101 - 138	Red-brown sandy clay
138 - 150	Brown decomposed clayey coarse sand
150 - 158	White and brown clayey decomposed rock
158 - 169	Brown and white clay
169 - 174	Brown clay
174 - 181	Brown clayey medium to coarse sand and gravel
181 - 210	Light brown clay
210 - 255	Brown clayey silt
255 - 257	Brown cemented fine to medium sand
257 - 265	Brown fine to medium sand
265 - 281	Pink dry clay
281 - 292	Pink clay and brown fine to medium sand
292 - 296	Brown cemented fine to medium sand
296 - 301	Brown fine to medium sand
301 - 312	Light brown sandy clay
312 - 318	Brown fine sand
318 - 322	Gray-brown sandy clay
322 - 333	Gray-brown clayey fine sand
333 - 352	Gray and pink dry clay
352 - 361	Brown medium sand
361 - 375	Brown fine to medium sand with clay
375 - 381	Brown clayey medium to coarse sand
381 - 389	Brown clayey coarse sand
389 - 391	Light brown clay
391 - 393	Blue-green clay
393 - 411	Blue-green very fine to fine sand
411 - 419	Gray-green clay
419 - 421	Gray-green silty indurated clay
421 - 429	Gray sandy clay
429 - 431	Light brown clay

Continued:

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL  
(Continued:)

<u>Depth (feet)</u>	<u>Description</u>
431 - 435	White coarse sand
435 - 438	Light brown clay
438 - 445	Brown-green medium to coarse sand
445 - 453	Light brown clay
453 - 468	Brown-green fine to medium sand
468 - 471	Green cemented fine to medium sand
471 - 475	Green medium to coarse sand
475 - 491	Green clayey medium to coarse sand
491 - 511	Brown silty fine sand
511 - 512	Pink and light brown clay
512 - 513	Green clay
513 - 521	Green fine to medium sand
521 - 529	Green clay
529 - 533	Green fine to medium sand
533 - 539	Green clay
539 - 568	Green fine to medium sand
568 - 572	Black cemented fine to medium sand
572 - 588	Green clayey medium to coarse sand
588 - 590	Hard rock

EAST OROSI CSD TEST WELL - WATER QUALITY TABLE

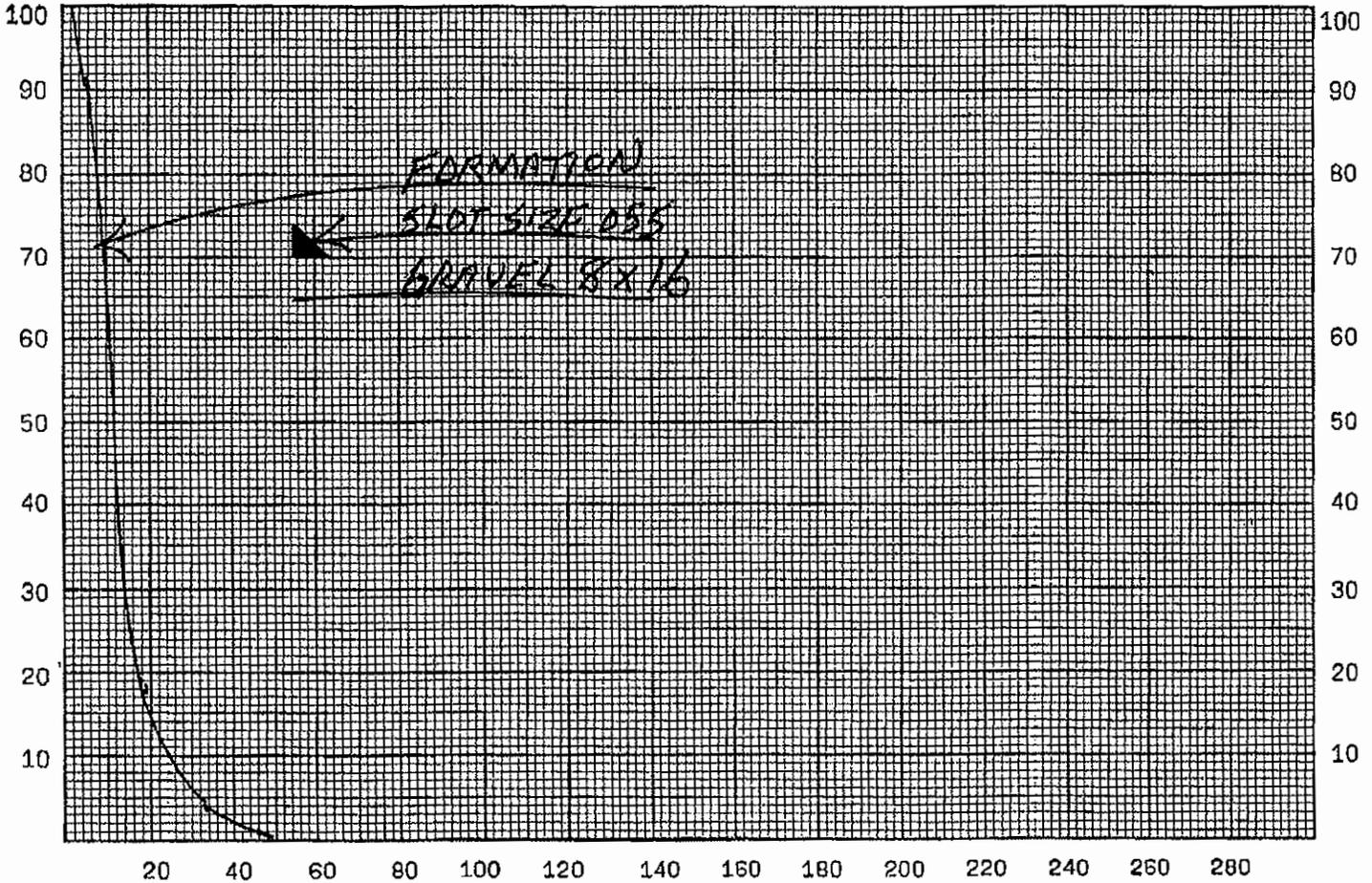
Depth Interval (feet)	Fe (mg/l)	Mn (mg/l)	As (ppb)	NO <sub>3</sub> (mg/l)	EC umhos/cm	TDS (mg/l)	pH	DBCP (ppb)	EDB (ppb)	1,2,3 TCP (ppt)	Perchlorate (µg/l)	Gross Alpha (pci/l)	SWL (ft)
138-141 A	<0.03	0.031	1.3	41	533	367	8.0	<0.01	<0.01	< 5	1.4	2.1	
173-179 A	<0.03	0.056	1.5	36	506	352	8.1	<0.01	<0.01	< 5	1	2.7	
255-260 A	<0.03	0.062	1.4	15	325	236	8.1	<0.01	<0.01	< 5	1.5	0.4	
255-260 P	<0.03	0.009	1.9	14	330	238	7.6	<0.01	<0.01	< 5	1.7	0.0	89.3
295-300 A	<0.03	0.021	1.4	15	355	243	8.1	0.01	<0.01	< 5	2.2	1.3	
352-357 A	<0.03	0.032	1.2	7	416	279	8.1	<0.01	<0.01	< 5	0.8	1.0	
394-400 A	<0.03	0.138	1.8	1	596	348	8.2	<0.01	<0.01	< 5	<1	0.8	
394-400 P	<0.03	0.211	2.4	< 0.5	605	346	7.6	<0.01	<0.01	< 5	<1	1.1	110.3
453-458 A	<0.03	0.057	1.3	7	411	276	8.1	<0.01	<0.01	< 5	<1	0.0	
491-496 A	0.03	0.023	1.8	8	382	260	8.1	<0.01	<0.01	< 5	<1	0.2	
529-534 A	<0.03	0.041	1.7	8	496	326	8.1	<0.01	<0.01	< 5	<1	0.7	
572-577 A	<0.03	0.066	1.2	6	704	460	8	<0.01	<0.01	< 5	<1	0.5	

# ROSCOE MOSS MANUFACTURING COMPANY

SAN JOAQUIN VALLEY DIVISION  
Route 1, Box 52, McFarland, Calif. 93250

(800) 827-1881

PHONE  
BAKERSFIELD (861) 393-5756  
FAX (861) 393-1824



(VERTICAL #'S REPRESENT PERCENT RETAINED)  
(HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt + Assoc  
East Orvis  
TW

SLOT OPENING RECOMMENDED 055

470

RECOMMENDED SCREEN : DIA. \_\_\_\_\_  
IN. LENGTH \_\_\_\_\_ FT

DATE 8/9/16

BY: [Signature]

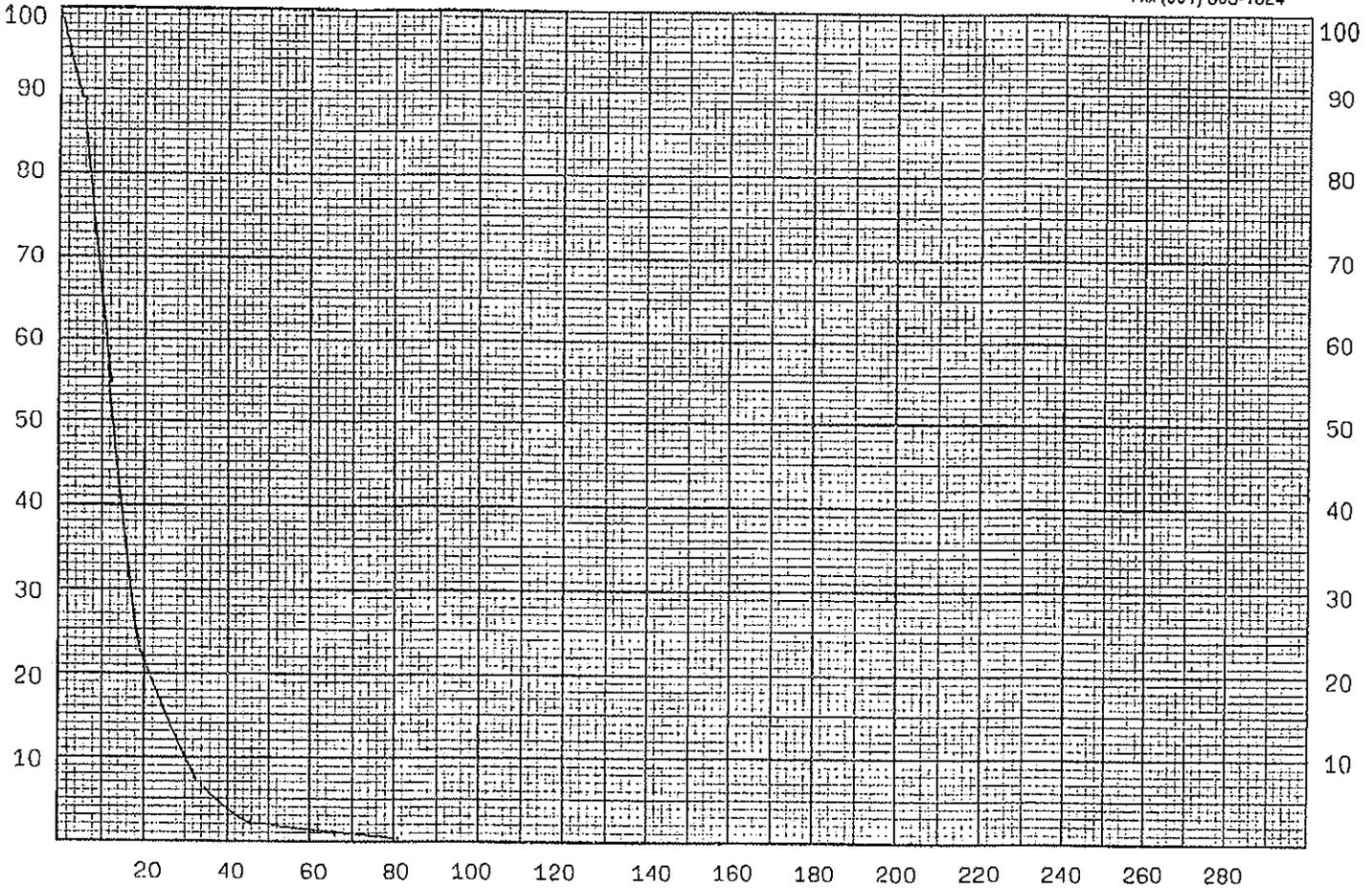
SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED		
	WT W/BKR	WT.	%
0.187			
0.132			
0.0937		2	01
0.0661		3	01
0.0469		5	01
0.0331		12	04
0.0197		51	18
0.0117		144	53
0.0059		247	91
PAN		271	100
BKR. WT.			

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(VERTICAL #'S REPRESENT PERCENT RETAINED)  
 (HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt & Assoc  
East Orosi  
TW

SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED		
	WT W/BKR	WT.	%
0.187			
0.132			
0.0937		2	01
0.0661		3	01
0.0469		7	02
0.0331		17	07
0.0197		57	24
0.0117		133	56
0.0059		210	89
PAN		295	100
BKR. WT.			

SLOT OPENING RECOMMENDED .055

260

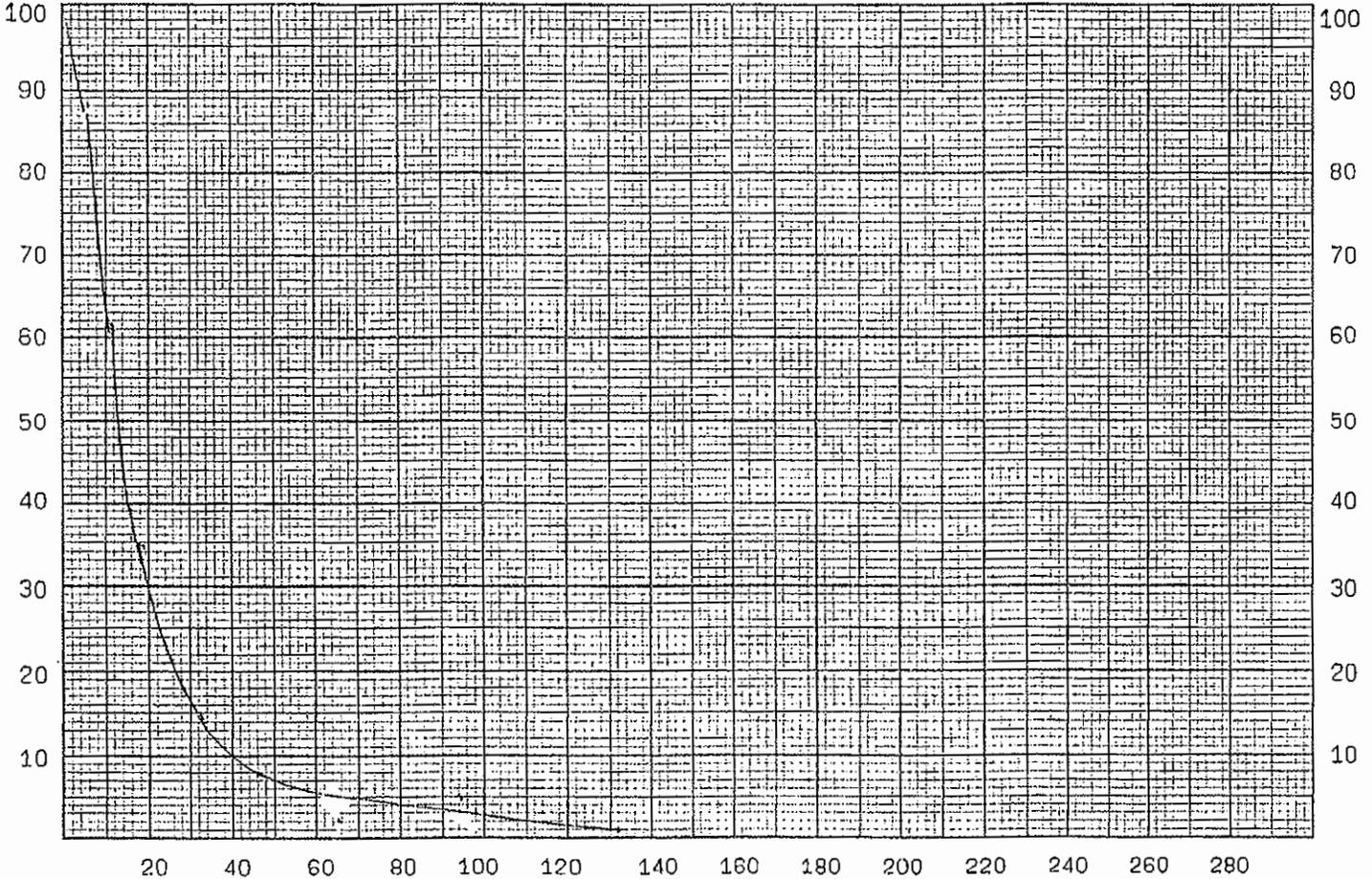
RECOMMENDED SCREEN : DIA. \_\_\_\_\_  
 IN. LENGTH \_\_\_\_\_ FT

DATE 5/9/16  
 BY: [Signature]

**ROSCOE MOSS MANUFACTURING COMPANY**  
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(VERTICAL #'S REPRESENT PERCENT RETAINED)  
 (HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt Assoc  
East Orsi  
TW

SLOT OPENING RECOMMENDED .055

310

RECOMMENDED SCREEN : DIA. \_\_\_\_\_ FT  
 \_\_\_\_\_ IN. LENGTH \_\_\_\_\_ FT

DATE 8/9/16  
 BY: Thomas Smith

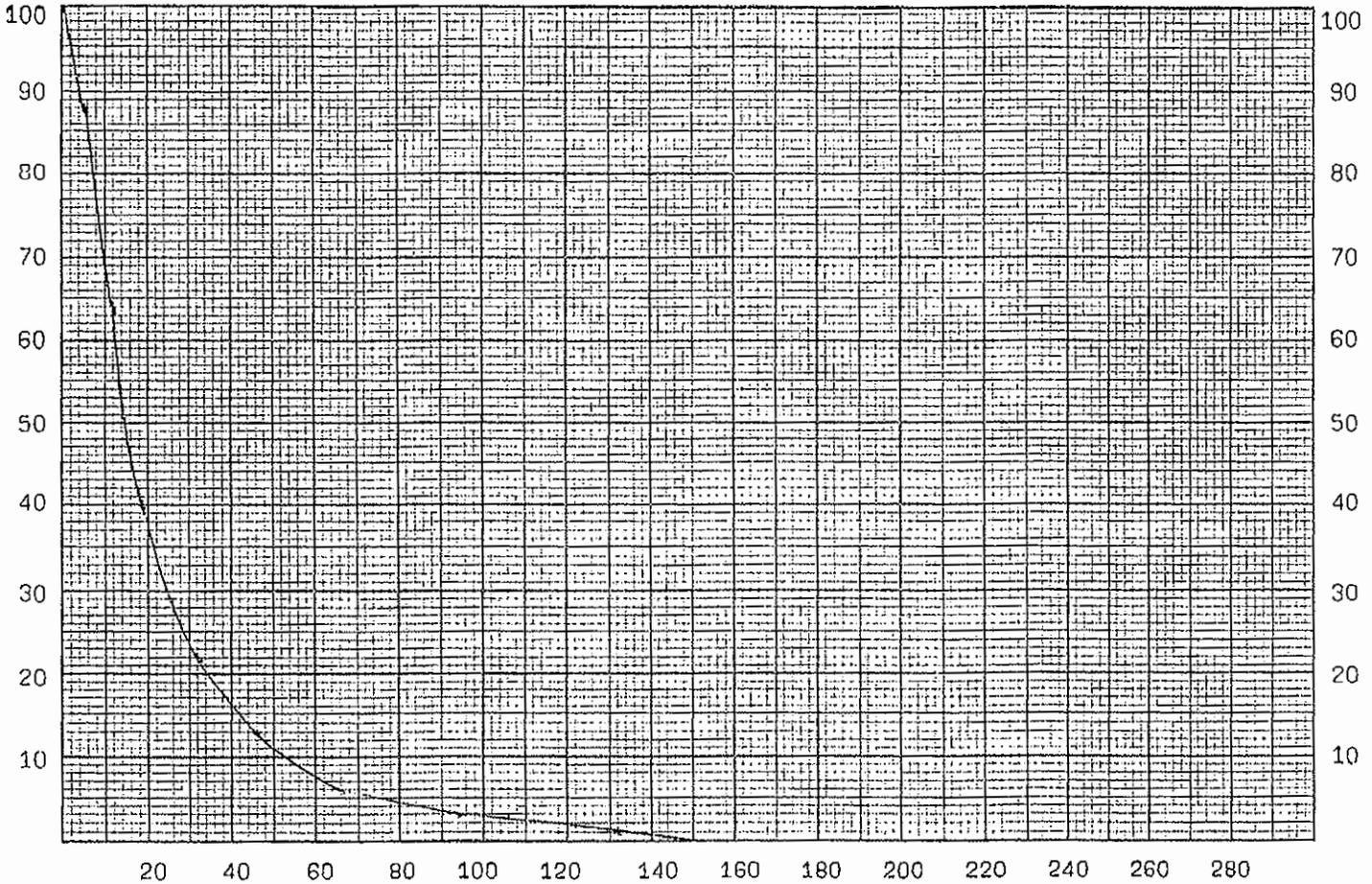
SIEVE OPENINGS	CUMULATIVE PERCENT.		RETAINED
	WT W/BKR	WT.	%
0.187			
0.132		3	01
0.0937		5	02
0.0661		10	04
0.0469		18	08
0.0331		33	14
0.0197		76	34
0.0117		137	61
0.0059		193	87
PAN		221	100
BKR. WT.			

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(VERTICAL #'S REPRESENT PERCENT RETAINED)  
(HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt & Assoc  
East Oros  
TW

SLOT OPENING RECOMMENDED 055

330

RECOMMENDED SCREEN : DIA. \_\_\_\_\_ FT  
IN. LENGTH \_\_\_\_\_

DATE 8/9/16  
BY: Thomas D. Smith

SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED	
	WT W/BKR	WT. %
0.187		2
0.132		4
0.0937		9
0.0661		20
0.0469		38
0.0331		64
0.0197		118
0.0117		185
0.0059		255
PAN		289
BKR. WT.		100

**Appendix G**

**LAFCO Districts Consolidation  
Constraints/Procedures/Restrictions**

## GOVERNMENT CODE

### SECTION 56825-56857

56825. The commission shall have the powers and duties set forth in Part 2 (commencing with Section 56300) and the additional powers and duties specified in this chapter.

56826. A reorganization or a plan of reorganization shall provide for one or more changes of organization of any type for each of the subject districts and may provide for the formation of one or more new districts pursuant to the principal act or acts designated in the reorganization or plan of reorganization and Section 56100.

56826.5. (a) A proposal for reorganization that includes the consolidation of two or more special districts not formed pursuant to the same principal act shall only be approved by the commission if both the following conditions are met:

(1) The commission is able to designate a successor or successors, or form a new district or districts, authorized by their respective principal acts to deliver all of the services provided by the consolidating districts at the time of consolidation.

(2) The commission makes the determinations specified in subdivision (b) of Section 56881.

(b) If a proposal for reorganization that includes the consolidation of two or more special districts not formed pursuant to the same principal act is initiated by the commission pursuant to subdivision (a) of Section 56375, it shall only be approved if the commission has prepared a study pursuant to Section 56378 or the written statement of determinations specified in subdivision (a) of Section 56430, and all of the following conditions are met:

(1) Each of the services provided by the districts subject to the proposal will be provided by a successor or successors, or by the formation of a new district authorized under a principal act to deliver the services. The commission may designate a successor other than the districts subject to the proposal only if the successor is currently providing the same service provided by one or more of the districts subject to the proposal. The commission shall not designate a city as a successor unless the city contains 70 percent or more of the area of land within one of the districts subject to the proposal, or the combined territory of two or more of the districts subject to the proposal, within its boundaries, and 70 percent or more of the number of registered voters of the district or the combined districts who reside within the boundaries of the city.

(2) The public services costs of the proposal that the commission is authorizing are likely to be less than or substantially similar to the costs of alternative means of providing the service.

(3) The proposal that the commission is approving promotes public access and accountability for community services needs and financial resources.

56827. (a) Except as provided in subdivision (b), upon the presentation of any petition or applications making a proposal for a reorganization, the commission may take proceedings pursuant to Part 3 (commencing with Section 56650) without referring the proposal to a reorganization committee, as provided in this part.

(b) The commission may refer to a reorganization committee any incorporation proposal that includes, or may be modified to include, any of the following changes of organization affecting an independent special district: consolidation, dissolution, formation, merger, or establishment of a subsidiary district.

(c) If the commission has initiated a change of organization or reorganization that affects more than one special district, the commission may, and is encouraged to, utilize a reorganization committee to review the proposal.

56828. Before any proposal for reorganization is referred to any reorganization committee, the commission may provide for a public hearing on the question of whether the proposal should be disapproved or referred to a reorganization committee and set a time and place for that hearing.

56829. The executive officer shall give notice of that hearing by publication, as provided in Sections 56153 and 56154, and by posting, as provided in Sections 56158 and 56159.

56830. The executive officer shall also give mailed notice of any hearing, as provided in Sections 56155 to 56157, inclusive, by mailing notice of hearing to all of the following persons and entities:

(a) Each affected city and affected district.

(b) The chief petitioners, if any.

(c) Each person who has filed a written request for special notice with the executive officer.

56831. The hearing shall be held by the commission on the date and at the time and place specified in the notice. After the conclusion of the hearing, the commission shall adopt a resolution doing either of the following:

(a) Disapproving the proposal of reorganization.

(b) Ordering the proposal referred to a reorganization committee for study, report, and recommendation.

56832. The commission may accept contributions from any source for the purpose of paying the expenses of a reorganization committee in the conduct of its study, report, and recommendation. Any affected county, affected city, or affected district may make contributions for that purpose. The commission and any affected county, affected city, or affected district may make any of its facilities available for the use of a reorganization committee and may authorize any of its officers and employees to furnish advice, assistance, or services

to the committee.

56833. Any resolution adopted by the commission ordering a proposal of reorganization referred to a reorganization committee shall do all of the following:

(a) Describe the proposed reorganization and designate the subject districts (the description and designation may be by reference to the proposal).

(b) Specify the maximum number of members, not to exceed three, to represent each subject district on the committee.

(c) Fix a time and place for the first meeting of the reorganization committee.

(d) Designate a date, not less than 60 days from the date of the first meeting of the committee, for the completion and submission to the commission of the report and recommendation of the committee.

56834. From time to time during the course of study upon a proposed plan of reorganization, the commission may do any of the following:

(a) Extend the time for completion and submission of the report and recommendation of a reorganization committee.

(b) Change the scope of the study by the addition or deletion of territory or subject districts, except that the authority granted to a commission under this subdivision shall not apply to a change of organization or reorganization as described in subdivision (a) of Section 56853.

(c) Authorize the committee to develop, study, report, and make recommendations upon alternative plans of reorganization.

56835. At least 15 days before the date of the first meeting of a reorganization committee, the executive officer shall mail a copy of the resolution adopted by the commission to each subject district designated in the resolution.

56836. Any person, including, but not limited to, a member of the legislative body of a subject district and an officer or employee of the district, may be appointed as a member to represent the district upon a reorganization committee.

56837. (a) The legislative body of each affected district shall appoint one or more members, not to exceed the maximum number specified by the commission, to represent the district on the reorganization committee. That legislative body may remove and replace any member previously appointed by it, and may fill any vacancy in its membership upon the committee.

(b) In the case of a reorganization committee created pursuant to subdivision (b) of Section 56827, the county board of supervisors shall appoint one or more members, not to exceed the maximum number specified by the commission, to represent the county on the reorganization committee. The county board of supervisors may appoint any person, including, but not limited to, an officer or employee of the county to represent the county on the reorganization committee. The county board of supervisors may remove and replace any member

previously appointed by it, and may fill any vacancy in its membership on the committee.

(c) In the case of a reorganization committee created pursuant to subdivision (b) of Section 56827, the commission shall appoint one or more members to represent the general public on the reorganization committee. The number of members appointed to represent the general public shall not exceed the maximum number specified by the commission to represent the county or each subject district. A member appointed pursuant to this subdivision shall not be an officer or employee of any local agency. The commission may remove and replace any member previously appointed by it, and may fill any vacancy in its membership on the committee.

56838. The clerk of a subject district shall give immediate notice to the executive officer of all appointments and removals made by the legislative body to a reorganization committee.

56839. At any time after the date fixed for the first meeting of a reorganization committee or during the course of the study by the committee, if the legislative body of any subject district, after written request by the executive officer, does not appoint any members to the committee, those members may be appointed by the commission.

56840. If, during the course of study upon a proposed plan of reorganization, the commission authorizes a change in the scope of the study, the membership of the reorganization committee shall be immediately changed to exclude representatives of each district or city for which a change of organization is no longer proposed and to include representatives of each district or city for which a new change of organization is proposed.

56841. Subject to any standards and procedures adopted by regulation by the commission, a reorganization committee shall provide for the selection of a presiding officer and secretary either of whom may but are not required to be members of the committee, adopt the standards and procedures which it deems advisable, fix the time and place for meetings of the committee, and determine the manner and method to be followed by the committee in its study, report, and recommendation.

56842. A quorum shall be deemed to be present at a meeting of a reorganization committee if members representing one-half or more of the subject districts are present. Each subject district shall be entitled to one vote at any reorganization committee meeting, which vote shall be determined by a majority of the members of the district present at the meeting.

56843. If a reorganization committee does not complete and submit its report and recommendation before the date specified by the commission or, prior to that date, if members of the committee representing one-half or more of the subject districts report to the commission that the committee is unable to agree upon the report and recommendation, the commission may either order the discharge of the committee, or appoint additional members to the committee, not to exceed the maximum number authorized for a single subject district, to represent the public and order the committee, as so enlarged, to continue its study.

56844. If the commission orders the discharge of a reorganization committee, the commission may make a study, report, and recommendation upon a plan of reorganization in the place of the reorganization committee.

56845. If the commission appoints additional members to the reorganization committee to represent the public and orders the reorganization committee, as so enlarged, to continue its study, the additional members shall have all of the rights and powers of members representing a single subject district, including participation in all studies, reports, and recommendations, attendance at all meetings, and the casting of a single vote on behalf of all of the additional members on any matter before the committee.

56846. Every officer of any affected county, affected city, or affected district shall make available to a reorganization committee any records, reports, maps, data, or other documents which in any way affect or pertain to the committee's study, report, and recommendation and shall confer with the committee concerning the problems and affairs of that county, city, or district.

56847. Upon completion of the study of a reorganization committee, the committee shall prepare and submit to the commission a report and recommendation containing all of the following:

(a) A brief summary of the nature and extent of the study of the committee.

(b) A full and complete description of the plan of reorganization and any alternative plans of reorganization which were studied by the committee.

(c) The recommendation of the committee for the approval or disapproval of all or any part of the plan of reorganization and of any alternative plans of reorganization.

56848. Approval by a reorganization committee of the report and recommendation shall require the affirmative vote of more than one-half of the subject districts represented on the reorganization committee.

56849. The reorganization committee shall file the original of its

reorganization for 30 days following that mailing.

(d) A proposal for an expedited reorganization shall include proposed terms and conditions that shall include at least all of the following:

(1) The proposed community services district is declared to be, and shall be deemed a community services district as if the district had been formed pursuant to the Community Services District Law (Division 3 (commencing with Section 61000) of Title 6). The exterior boundary and sphere of influence of the proposed community services district shall be the exterior boundary and sphere of influence of the district proposed to be dissolved.

(2) The proposed community services district succeeds to, and is vested with, the same powers, duties, responsibilities, obligations, liabilities, and jurisdiction of the district proposed to be dissolved.

(3) The status, position, and rights of any officer or employee of the district proposed to be dissolved shall not be affected by the transfer and shall be retained by the person as an officer or employee of the proposed community services district.

(4) The proposed community services district shall have ownership, possession, and control of all books, records, papers, offices, equipment, supplies, moneys, funds, appropriations, licenses, permits, entitlements, agreements, contracts, claims, judgments, land, and other assets and property, real or personal, owned or leased by, connected with the administration of, or held for the benefit or use of, the district proposed to be dissolved.

(5) The unexpended balance as of the effective date of the expedited reorganization of any funds available for use by the district proposed to be dissolved shall be available for use by the proposed community services district.

(6) No payment for the use, or right of use, of any property, real or personal, acquired or constructed by the district proposed to be dissolved shall be required by reason of the succession pursuant to the expedited reorganization, nor shall any payment for the proposed community services district's acquisition of the powers, duties, responsibilities, obligations, liabilities, and jurisdiction be required by reason of that succession.

(7) All ordinances, rules, and regulations adopted by the district proposed to be dissolved in effect immediately preceding the effective date of the expedited reorganization, shall remain in effect and shall be fully enforceable unless amended or repealed by the proposed community services district, or until they expire by their own terms. Any statute, law, rule, or regulation in force as of the effective date of the expedited reorganization, or that may be enacted or adopted with reference to the district proposed to be dissolved shall mean the proposed community services district.

(8) All allocations of shares of property tax revenue pursuant to Part 0.5 (commencing with Section 50) of the Revenue and Taxation Code, special taxes, benefit assessments, fees, charges, or any other impositions of the district proposed to be dissolved shall remain in effect unless amended or repealed by the proposed community services district, or they expire by their own terms.

(9) The appropriations limit established pursuant to Division 9 (commencing with Section 7900) of Title 1 of the district proposed to be dissolved shall be the appropriations limit of the proposed community services district.

(10) Any action by or against the district proposed to be dissolved shall not abate, but shall continue in the name of the proposed community services district, and the proposed community services district shall be substituted for the district proposed to

be dissolved by the court in which the action is pending. The substitution shall not in any way affect the rights of the parties to the action.

(11) No contract, lease, license, permit, entitlement, bond, or any other agreement to which the district proposed to be dissolved is a party shall be void or voidable by reason of the enactment of the expedited reorganization, but shall continue in effect, with the proposed community services district assuming all of the rights, obligations, liabilities, and duties of the district proposed to be dissolved.

(12) Any obligations, including, but not limited to, bonds and other indebtedness, of the district proposed to be dissolved shall be the obligations of the proposed community services district. Any continuing obligations or responsibilities of the district proposed to be dissolved for managing and maintaining bond issuances shall be transferred to the proposed community services district without impairment to any security contained in the bond instrument.

(e) If a board of supervisors is the governing body of a resort improvement district pursuant to Chapter 1 (commencing with Section 13000) of Division 11 of the Public Resources Code, then, notwithstanding paragraph (3) of subdivision (d), the proposed terms and conditions may provide for the election of an initial board of directors of a community services district pursuant to Chapter 1 (commencing with Section 61020) of Part 2 of Division 3 of Title 6.

(f) As used in this section, "expedited reorganization" means a reorganization that consists solely of the formation of a community services district and the dissolution of any of the following:

(1) A resort improvement district formed pursuant to the Resort Improvement District Law, Division 11 (commencing with Section 13000) of the Public Resources Code.

(2) The Montalvo Municipal Improvement District formed pursuant to Chapter 549 of the Statutes of 1955.

(3) The Bethel Island Municipal Improvement District formed pursuant to Chapter 22 of the Statutes of 1960.

(4) The Embarcadero Municipal Improvement District formed pursuant to Chapter 81 of the Statutes of 1960.

(g) This section shall remain in effect only until January 1, 2018, and as of that date is repealed, unless a later statute which is enacted before January 1, 2018, deletes or extends that date.

56853.6. (a) In the case of an accelerated reorganization, notwithstanding any provision of this division or the Recreation and Park District Law (Chapter 4 (commencing with Section 5780) of Division 5 of the Public Resources Code), unless the governing body of the Tahoe Paradise Resort Improvement District files a resolution of objection with the El Dorado County Local Agency Formation Commission before the close of the hearing held pursuant to Section 56666, the commission may approve, disapprove, or conditionally approve, the accelerated reorganization. If the commission approves or conditionally approves the accelerated reorganization, the commission shall order the accelerated reorganization without an election.

(b) If the governing body of the Tahoe Paradise Resort Improvement District files a resolution of objection with the commission before the close of the hearing held pursuant to Section 56666, the commission shall disapprove the proposed accelerated reorganization.

(c) The commission may order any material change to the terms and conditions of the accelerated reorganization set forth in the

proposal. The commission shall direct the executive officer to give the Tahoe Paradise Resort Improvement District mailed notice of any change prior to ordering a change. The commission shall not, without the written consent of the Tahoe Paradise Resort Improvement District, take any further action on the accelerated reorganization for 30 days following that mailing.

(d) A proposal for an accelerated reorganization shall include proposed terms and conditions that shall include, but are not limited to, all of the following:

(1) The proposed recreation and park district is declared to be, and shall be deemed, a recreation and park district as if the district had been formed pursuant to the Recreation and Park District Law (Chapter 4 (commencing with Section 5780) of Division 5 of the Public Resources Code). The exterior boundary and sphere of influence of the proposed recreation and park district shall be the exterior boundary and sphere of influence of the Tahoe Paradise Resort Improvement District.

(2) The proposed recreation and park district succeeds to, and is vested with, the same powers, duties, responsibilities, obligations, liabilities, and jurisdiction of the Tahoe Paradise Resort Improvement District.

(3) The status, position, and rights of any officer or employee of the Tahoe Paradise Resort Improvement District shall not be affected by the transfer and shall be retained by the person as an officer or employee of the proposed recreation and park district.

(4) The proposed recreation and park district shall have ownership, possession, and control of all books, records, papers, offices, equipment, supplies, moneys, funds, appropriations, licenses, permits, entitlements, agreements, contracts, claims, judgments, land, and other assets and property, real or personal, owned or leased by, connected with the administration of, or held for the benefit or use of, the Tahoe Paradise Resort Improvement District.

(5) The unexpended balance as of the effective date of the accelerated reorganization of any funds available for use by the Tahoe Paradise Resort Improvement District shall be available for use by the proposed recreation and park district.

(6) No payment for the use, or right of use, of any property, real or personal, acquired or constructed by the Tahoe Paradise Resort Improvement District shall be required by reason of the succession pursuant to the accelerated reorganization, nor shall any payment for the proposed recreation and park district's acquisition of the powers, duties, responsibilities, obligations, liabilities, and jurisdiction be required by reason of that succession.

(7) All ordinances, rules, and regulations adopted by the Tahoe Paradise Resort Improvement District in effect immediately preceding the effective date of the accelerated reorganization shall remain in effect and shall be fully enforceable unless amended or repealed by the proposed recreation and park district, or until they expire by their own terms. Any statute, law, rule, or regulation in force as of the effective date of the accelerated reorganization, or that may be enacted or adopted with reference to the Tahoe Paradise Resort Improvement District shall mean the proposed recreation and park district.

(8) All allocations of shares of property tax revenue pursuant to Part 0.5 (commencing with Section 50) of the Revenue and Taxation Code, special taxes, benefit assessments, fees, charges, or any other impositions of the Tahoe Paradise Resort Improvement District shall remain in effect unless amended or repealed by the proposed recreation and park district, or they expire by their own terms.

(9) The appropriations limit established pursuant to Division 9 (commencing with Section 7900) of Title 1 for the Tahoe Paradise Resort Improvement District shall be the appropriations limit of the proposed recreation and park district.

(10) Any action by or against the Tahoe Paradise Resort Improvement District shall not abate, but shall continue in the name of the proposed recreation and park district, and the proposed recreation and park district shall be substituted for the Tahoe Paradise Resort Improvement District by the court in which the action is pending. The substitution shall not in any way affect the rights of the parties to the action.

(11) No contract, lease, license, permit, entitlement, bond, or any other agreement to which the Tahoe Paradise Resort Improvement District is a party shall be void or voidable by reason of the enactment of the accelerated reorganization, but shall continue in effect, with the proposed recreation and park district assuming all of the rights, obligations, liabilities, and duties of the Tahoe Paradise Resort Improvement District.

(12) Any obligations, including, but not limited to, bonds and other indebtedness, of the Tahoe Paradise Resort Improvement District shall be the obligations of the proposed recreation and park district. Any continuing obligations or responsibilities of the Tahoe Paradise Resort Improvement District for managing and maintaining bond issuances shall be transferred to the proposed recreation and park district without impairment to any security contained in the bond instrument.

(e) As used in this section, "accelerated reorganization" means a reorganization that consists solely of the dissolution of the Tahoe Paradise Resort Improvement District and the formation of a recreation and park district.

(f) This section shall remain in effect only until January 2, 2018, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2018, deletes or extends that date.

56855. (a) This section shall apply to any proposal which contains the annexation of territory to a fire protection district which is organized pursuant to the Fire Protection District Law of 1987, Part 3 (commencing with Section 13800) of Division 12 of the Health and Safety Code, and the affected territory is or is proposed to be all or part of a city which is within the fire protection district.

(b) Prior to the adoption by the local agency formation commission of a resolution making determinations, the district may request and the commission shall impose, as a term and condition, a requirement that the legislative body of the city shall enter into a contract with the district. The contract shall require:

(1) That the affected territory shall remain part of the district for a period of at least 10 years.

(2) That the city shall pay the cost of services provided by the district. This payment shall be in amounts and on terms specified in the contract.

(3) Any other conditions to which the city and the district mutually agree.

56856. (a) The commission shall not approve or conditionally approve a change of organization or reorganization that would result

in the annexation to a special district of territory that is within a farmland security zone created pursuant to Article 7 (commencing with Section 51296) of Chapter 7 of Division 1 if that special district provides or would provide facilities or services related to sewers, nonagricultural water, or streets and roads, unless the facilities or services benefit land uses that are allowed under the farmland security zone contract and the landowner consents to the change of organization or reorganization.

(b) This section shall not apply during the three-year period preceding the termination of a farmland security zone contract under Article 7 (commencing with Section 51296) of Chapter 7 of Division 1.

56856.5. (a) The commission shall not approve or conditionally approve a change of organization or reorganization that would result in the annexation to a city or special district of territory that is subject to a contract entered into pursuant to the California Land Conservation Act of 1965 (Chapter 7 (commencing with Section 51200) of Part 1 of Division 1), other than a contract entered into pursuant to Article 7 (commencing with Section 51296) of Chapter 7 of Part 1 of Division 1, if that city or special district provides or would provide facilities or services related to sewers, nonagricultural water, or streets and roads to the territory, unless these facilities or services benefit land uses that are allowed under the contract.

(b) This section shall not be construed to preclude the annexation of territory for the purpose of using other facilities or services provided by the agency that benefit land uses allowable under the contract.

(c) Notwithstanding subdivision (a), the commission may nevertheless approve a change of organization or reorganization if it finds any of the following:

(1) The city or county that would administer the contract after annexation has adopted policies and feasible implementation measures applicable to the subject territory ensuring the continuation of agricultural use and other uses allowable under the contract on a long-term basis.

(2) The change of organization or reorganization encourages and provides planned, well-ordered, and efficient urban development patterns that include appropriate consideration of the preservation of open-space lands within those urban development patterns.

(3) The change of organization or reorganization is necessary to provide services to planned, well-ordered, and efficient urban development patterns that include appropriate consideration of the preservation of open-space lands within those urban development patterns.

(d) This section shall not apply to territory subject to a contract for which either of the following applies:

(1) A notice of nonrenewal has been served pursuant to Section 51245, if the annexing agency agrees that no services will actually be provided by it for use during the remaining life of the contract for land uses or activities not allowed under the contract.

(2) A tentative cancellation has been approved pursuant to Section 51282.

56857. (a) Upon receipt by the commission of a proposed change of organization or reorganization that includes the annexation of territory to any district, if the proposal is not filed by the district to which annexation of territory is proposed, the executive

officer shall place the proposal on the agenda for the next commission meeting for information purposes only and shall transmit a copy of the proposal to any district to which an annexation of territory is requested.

(b) No later than 60 days after the date that the proposal is on the commission's meeting agenda in accordance with subdivision (a), any district to which annexation of territory is proposed may adopt and transmit to the commission a resolution requesting termination of the proceedings. The resolution requesting termination of the proceedings shall be based upon written findings supported by substantial evidence in the record that the request is justified by a financial or service related concern. Prior to the commission's termination of proceedings pursuant to subdivision (c), the resolution is subject to judicial review.

(c) If any district to which annexation of territory is proposed has adopted and transmitted to the commission a resolution requesting termination of proceedings within the time period prescribed by, and in accordance with, subdivision (b), and if the commission has not been served with notice that judicial review of that resolution is being sought pursuant to subdivision (b), then the commission shall terminate the proceedings no sooner than 30 days from receipt of the resolution from the district.

(d) For purposes of an annexation to a district pursuant to this section or Section 56668.3:

(1) "Financial concerns" means that the proposed uses within the territory proposed to be annexed do not have the capacity to provide sufficient taxes, fees, and charges, including connection fees, if any, to pay for the full cost of providing services, including capital costs. Cost allocation shall be based on generally accepted accounting principles and shall be subject to all constitutional and statutory limitations on the amount of the tax, fee, or charge.

(2) "Service concerns" means that a district will not have the ability to provide the services that are the subject of the application to the territory proposed to be annexed without imposing level of service reductions on existing and planned future uses in the district's current service area. "Service concerns" does not include a situation when a district has the ability to provide the services or the services will be available prior to the time that services will be required.

(3) A district may make findings regarding financial or service concerns based on information provided in the application and any additional information provided to the district by the commission or the applicant that is relevant to determining the adequacy of existing and planned future services to meet the probable future needs of the territory. Findings related to service or financial concerns may be based on an urban water management plan, capital improvement plan, financial statement, comprehensive annual financial report, integrated resource management plan, or other information related to the ability of a district to provide services.

(4) Nothing in this section shall be construed to create a right or entitlement to water service or any specific level of water service.

(5) Nothing in this section is intended to change existing law concerning a district's obligation to provide water service to its existing customers or to any potential future customers.

(e) This section shall not apply if all districts to which annexation of territory is proposed have adopted and transmitted to the commission a resolution supporting the proposed change of organization or reorganization.

*Updated: January 1, 2015*

**MEMORANDUM**

**TO:** CALAFCO  
**FROM:** Clark A. Alsop  
Paula C.P. de Sousa  
**RE:** CALAFCO: The Metamorphosis of Special Districts: Current Methods for Consolidation, Dissolution, Subsidiary District Formation and Merger

This Memorandum is intended to provide an updated overview of the typical methods for the reorganization of special districts. Of course, the procedures and processes for the consolidation, dissolution, merger and establishment of a subsidiary district may take various forms not delineated herein. Each Local Agency Formation Commission (“LAFCO”) should work with its legal counsel to follow appropriate procedures.

**QUESTIONS PRESENTED**

1. What are the various ways a special district may be modified under the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Gov. Code § 56000 *et seq.*)<sup>1</sup> (the “Act”)?
2. How does the Act restrict the processes to modify special districts?

**SHORT ANSWERS**

1. Districts may be modified through the following means or combination thereof:
  - A. Consolidation;
  - B. Dissolution, including Dissolution with Annexation;
  - C. Merger;
  - D. Establishment of a Subsidiary District.
2. These specific limitations apply to some of the processes listed above:
  - A. Consolidation: Historically, only districts formed under the same principal acts could be consolidated. As of 2005, the consolidation of two or more special districts not formed pursuant to the same principal act is permitted subject to certain procedures.
  - B. Merger: A city must consent to a merger affecting its territory whether LAFCO initiates it or the voters approved it.
  - C. Establishment of a Subsidiary District: A subsidiary district may be established only if it meets certain statutory requirements regarding the amount of subsidiary district territory and the number of district voters within the governing city’s territory. Additionally, a city must consent to establishment of a subsidiary district affecting its territory.

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<sup>1</sup> All further citations are to the Government Code unless otherwise specified.  
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## DISCUSSION

### A. CONSOLIDATION

#### 1. Brief History

In 1986, the State Legislature amended the Act to include, in part, a definition for the term “consolidation.” Under the Act, a “consolidation” is defined as “the uniting or joining of two or more . . . districts into a single new successor district.” (§ 56030.) Prior to January 1, 2005,<sup>2</sup> only districts formed pursuant to the same principal act could consolidate. Now, the Act permits consolidation of two or more special districts not formed pursuant to the same principal act if certain procedures are followed. Additionally, as of July 1, 1994, LAFCOs have had the power to initiate proposals to consolidate districts. (§ 56375(a).) Before 1994, only districts or petitioners could initiate a consolidation proceeding.

Sections 56859 and 56860 require that proceedings to form a consolidated district must be conducted as authorized in the principal act of the district to be formed. (§ 56859.) However, Section 56100 specifies that for purposes of reorganization, LAFCO serves as the conducting authority and that the reorganization provisions of the Act prevail over any conflicting laws in the principal act of the district, subject to a commission determination.<sup>3</sup>

#### 2. LAFCO-Initiated Consolidation

LAFCO may only initiate a consolidation that is consistent with a recommendation or conclusion of a study prepared pursuant to Sections 56378, 56425, or 56430 and the LAFCO determinations specified in Section 56881(b). (§ 56375(a)(3).) Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence, and to conduct service reviews of the municipal services provided in the area under review.

Section 56881(b) requires LAFCO to make both the following determinations with regard to a proposed LAFCO-initiated consolidation:

- (1) Public service costs of a proposal LAFCO is authorizing are likely to be less than or substantially similar to the costs of alternate means of providing the service; and
- (2) Consolidation promotes public access and accountability for community services needs and financial resources.

Although not required, where LAFCO initiates a consolidation, Section 56827(c) “encourages” LAFCO to utilize a reorganization committee to review the consolidation proposal.

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<sup>2</sup> Assembly Bill 2067, passed on September 10, 2004 and effective January 1, 2005, amended Section 56030 to permit consolidation of districts not formed pursuant to the same principal act. The Bill contained a sunset provision reinstating the prior law on July 1, 2008, but Senate Bill 819, passed July 20, 2007, deleted the sunset provision effective January 1, 2008.

<sup>3</sup> The California Legislature enacted a significant overhaul of California’s Public Employee retirement system in 2013. The effects of that legislation on special district employees as a result of reorganizations is beyond the scope of this paper.

Section 56668 requires LAFCO to consider the factors set forth in Appendix "A" to this Memorandum in evaluating the consolidation proposal. LAFCO may also impose terms and conditions pursuant to Sections 56885.5 and 56886. It is important to keep in mind that if a conflicting proposal is submitted to LAFCO within 60 days of the submission of the original consolidation proposal, LAFCO cannot approve the original consolidation proposal until it considers the second conflicting proposal. (§ 56657.)

**a. Protest/Election/Certificate of Completion**

LAFCO must provide notice and hold a public protest hearing in the affected territory for a LAFCO-initiated consolidation. (§ 57008.) The protest hearing must be noticed pursuant to Section 57025 (regarding method and timing of notice) and Section 57026 (regarding content of notice). At any time prior to the conclusion of the protest hearing, any registered voter within inhabited territory that is the subject of a proposed consolidation, or any owner of land within inhabited or uninhabited territory subject to a proposed consolidation, may file a written protest against the consolidation. (§ 57051.)

LAFCO is not required to place the LAFCO-initiated consolidation before the voters unless written protests have been filed in accordance with the requirements of Section 57113. (§57077.2(b)(4).) For changes of organization consisting of consolidation of two or more districts, Section 57113 requires that LAFCO submit a consolidation to the voters if LAFCO receives protests signed by either of the following:

- (a) In the case of inhabited territory, protests have been signed by either of the following:
  - (1) At least 10 percent of the number of landowners within any subject agency within the affected territory who own at least 10 percent of the assessed value of land within the territory. However, if the number of landowners within a subject agency is less than 300, the protests shall be signed by at least 25 percent of the landowners who own at least 25 percent of the assessed value of land within the territory of the subject agency.
  - (2) At least 10 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory. However, if the number of voters entitled to vote within a subject agency is less than 300, the protests shall be signed by at least 25 percent of the voters entitled to vote.
- (b) In the case of a landowner-voter district, the territory is uninhabited and protests have been signed by at least 10 percent of the number of landowners within any subject agency within the affected territory, who own at least 10 percent of the assessed value of land within the territory.

However, if the number of landowners entitled to vote within a subject agency is less than 300, protests shall be signed by at least 25 percent of the landowners entitled to vote.

(§ 57113(a) and (b) (emphasis added).) For LAFCO-initiated proposals, the method of and formula for calculating protests are the same regardless of whether a resolution of objection is filed by a subject agency. (§ 57077.2(b)(4).)

If a sufficient protest is made, LAFCO is required to submit the consolidation to the voters. LAFCO's resolution must designate the territory in which the elections will be held, provide the question to be submitted to the voters, specify any consolidation terms and conditions, and state the vote required to confirm the consolidation. (§§ 57115, 57118.) The election will be held within the territory of each district ordered to be consolidated. (§ 57118(a).) The election procedures and requirements are set forth in Section 57125 *et seq.*

If an election is held and the majority of voters vote against the consolidation in any of the districts ordered to be consolidated, LAFCO must adopt a certificate of completion terminating proceedings. (§§ 57177.5(b), 57179.) However, if the majority of the voters in both districts ordered to be consolidated vote in favor of consolidation, LAFCO must execute a certificate of completion confirming the order of consolidation. (§ 57177.5(a).) If no election is required to be held, the LAFCO Executive Officer must still execute a certificate of completion and make the requisite filings. (§ 57200.)

**b. Effect of Consolidation**<sup>4</sup>

After the LAFCO Executive Officer files the requisite certificate of completion, the consolidated district succeeds to all the "powers, rights, duties, obligations, functions, and properties of all predecessor districts" which consolidated to form the consolidated district. (§57500.) Included in these rights and duties is liability of the consolidated district for all debts of the predecessor districts. (§ 57502.) The consolidated district "steps into the shoes" of the predecessor districts because it is as if the "consolidated district had been originally formed under the principal act." (§ 57500.)

**c. Effective Date**

Finally, the consolidation's effective date is the date set forth in LAFCO's resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the consolidation. (§ 57202(a).) If LAFCO's resolution does not establish an effective date, the consolidation is

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<sup>4</sup> This section of the Memorandum summarizes the default general conditions applicable to consolidations, as set out in Section 57500 *et seq.* Pursuant to Section 57302, these general conditions only apply if LAFCO does not impose any of the specific terms and conditions authorized under Section 56886. In the event LAFCO does impose terms and conditions under Section 56886, Section 57302 states that those terms and conditions become the "exclusive terms and conditions of the change of organization or reorganization and shall control over the general provisions of this part." The language in Section 57302 conflicts with newly enacted revisions to Section 56886, which specifies that terms and conditions imposed under Section 56886 "shall prevail in the event of a conflict between a specific term and condition authorized [pursuant to Section 56866] and any of the general provisions [set out at Section 57300 *et seq.*]." The Legislative Committee of the California Association of Local Agency Formation Commissions ("CALAFCO") will undertake a review of the inconsistencies between Sections 56886 and 57302.

effective on the date the consolidation is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

**3. District-Initiated Consolidation**

**a. Initiated by One District**

The legislative body of a district wishing to consolidate with another district must submit a Resolution of Application to the LAFCO Executive Officer of the principal county. (§ 56658(a).) The Application must contain the components set forth in Appendix “B” to this Memorandum, which include, in part, a Resolution of Application (see Appendix “C”) and a Plan for Providing Services (see Appendix “D”).

At least five days before the hearing, the Executive Officer must prepare a report on the Application, including his or her recommendation on the Application, and must give a copy of the report to every affected district, agency, and city. (§ 56665.) At the hearing, LAFCO hears and receives written and oral protests and evidence as well as the Executive Officer’s report and the Plan for Providing Services. (§ 56666.) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating the proposal to consolidate. LAFCO may also impose terms and conditions pursuant to Sections 56885.5 and 56886. It is important to keep in mind that if a conflicting proposal is submitted to LAFCO within 60 days of the submission of the consolidation proposal, LAFCO cannot approve the original consolidation proposal until it considers the conflicting proposal. (§ 56657.)

**i. Protest/Election/Certificate of Completion**

Where a subject agency has not objected by resolution, the voter/landowner petition requirements for written protest are subject to Section 57077.2(b)(2). (§ 57077.2.) Section 57077.2(b)(2) provides that the applicable protest threshold is the threshold set out in Section 57077.2(b)(1)(A) and (B), i.e.:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within the territory subject to the consolidation who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, the territory.
- (B) In the case of a landowner-voter district, the territory is uninhabited and protests have been signed by at least 25 percent of the number of landowners within the territory subject to the consolidation, owning at least 25 percent of the assessed value of land within the territory.

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To summarize, where a subject agency does not object to the consolidation, the protest is measured in the entire affected territory.

(Id.) On the other hand, if a subject agency does file a resolution of objection, then the method of, and formula for, calculating protests are set forth in Section 57077.2(b)(3), which provides:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within any subject agency within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory.
- (B) In the case of a landowner-voter district, the territory is uninhabited, and protests have been signed by at least 25 percent of the number of landowners within any subject agency within the affected territory, owning at least 25 percent of the assessed value of land within the subject agency.

(Id. (emphasis added).) Notably, where a subject agency has objected, the protest calculation is measured/calculated within any subject agency within the affected territory, as compared to measuring/calculating protests within the entire territory subject to consolidation, as is the case for consolidations without subject agency objection. Regardless, if LAFCO is required to submit a consolidation to the voters pursuant to either Section 57077.2(b)(2) or Section 57077.2(b)(3) protest thresholds, then the election must be held within the territory of each district ordered to be consolidated. (§57118(a).) LAFCO's resolution must provide the question to be submitted to the voters, specify any consolidation terms and conditions, and state the vote required to confirm the consolidation. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the consolidation in any one of the districts ordered to be consolidated, LAFCO must adopt a certificate of completion terminating proceedings. (§§ 57177.5(b), 57179.) However, if the majority of the voters in the districts ordered to be consolidated vote in favor of consolidation, LAFCO must execute a certificate of completion confirming the order of consolidation. (§ 57177.5(a).) If no election is required to be held, the LAFCO Executive Officer must still execute a certificate of completion and make the requisite filings. (§ 57200.)

ii. *Effect of Consolidation*<sup>5</sup>

After the LAFCO Executive Officer files the certificate of completion, the consolidated district succeeds to all the “powers, rights, duties, obligations, functions, and properties of all predecessor districts” which consolidated to form a consolidated district. (§ 57500.) Included in these rights and duties is liability of the consolidated district for all debts of the predecessor districts. (§ 57502.) The consolidated district “steps into the shoes” of the predecessor districts because it is as if the “consolidated district had been originally formed under the principal act.” (§ 57500.)

iii. *Effective Date*

The consolidation’s effective date is the date set forth in LAFCO’s resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the consolidation. (§ 57202(a).) If LAFCO’s resolution does not establish an effective date, the consolidation is effective on the date the consolidation is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

b. *Initiated by Two or More Districts*

Consolidation may also be initiated by the legislative bodies of two or more special districts. In order to start the consolidation process, the districts must adopt “substantially similar” Resolutions of Application to consolidate the districts. (§ 56853(a).) The Application must contain the components set forth in Appendix “B” to this Memorandum, which include, in part, a Resolution of Application (see Appendix “C”) and a Plan for Providing Services (see Appendix “D”).

LAFCO may change the terms of the consolidation set forth in the districts’ proposal. (§ 56853(b).) However, after any material modification to any of the terms of the consolidation proposal, LAFCO must provide mailed written notice of the change to the districts and cannot move forward on the consolidation for 30 days following that mailing without the districts’ written consent. (§ 56853(b).) During this 30 day time period, either district may file a written demand with the LAFCO Executive Officer, demanding that LAFCO make determinations only after notice and hearing on the proposals. If no written demand is made by either district, LAFCO may make those determinations without notice or a hearing. However, LAFCO cannot make any changes that would delete or add districts to the proposed consolidation without the written consent of the applicant districts. (§ 56853(c).)<sup>6</sup>

i. *Protest/Election/Certificate of Completion*

Upon receiving the districts’ proposals to consolidate, LAFCO must approve, or conditionally approve, the consolidation unless LAFCO receives a protest petition from the statutorily-mandated number of landowners/voters required to submit the consolidation to an election, as described below. (§ 56853(a).) Moreover, if a conflicting proposal is submitted to

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<sup>5</sup> See, Footnote 4.

<sup>6</sup> “The application of any provision of this subdivision may be waived by consent of all the subject agencies.” (§ 56852(b).)

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LAFCO within 60 days of the submission of the proposal to consolidate, LAFCO cannot approve the proposal to consolidate until it considers the conflicting proposal. (§ 56657.)

LAFCO will order consolidation subject to confirmation of the voters, if it receives protests meeting the voter/landowner requirements of Section 57077.2(b)(1). (§ 57077.2.) Section 57077.2(b)(1) sets forth the following protest threshold:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within the territory subject to the consolidation who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, the territory.
- (B) In the case of a landowner-voter district, the territory is uninhabited and protests have been signed by at least 25 percent of the number of landowners within the territory subject to the consolidation, owning at least 25 percent of the assessed value of land within the territory.

(§ 57077.2 (b)(1).)

If sufficient protest requires LAFCO to submit a consolidation to the voters as calculated pursuant to Section 57077.2(b)(1), the election will be held within the territory of each district ordered to be consolidated. (§ 57118(a).) LAFCO's resolution must provide the question to be submitted to the voters, specify any consolidation terms and conditions, and state the vote required to confirm the consolidation. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters within the territory of any district vote against the consolidation, LAFCO must adopt a certificate of completion terminating proceedings. (§§ 57177.5(b), 57179.) However, if the majority of the voters in both districts ordered to be consolidated vote in favor of consolidation, the LAFCO Executive Officer must execute a certificate of completion confirming the order of consolidation. (§ 57177.5(a).) If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

ii. *Effect of Consolidation*<sup>7</sup>

After the LAFCO Executive Officer files the requisite certificate of completion, the consolidated district succeeds to all the "powers, rights, duties, obligations, functions, and properties of all predecessor districts" which were consolidated to form a consolidated district. (§ 57500.) Included in these rights and duties, a consolidated district becomes liable for all debts

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<sup>7</sup> See, Footnote 4.

of the predecessor districts. (§ 57502.) The consolidated district “steps into the shoes” of the predecessor districts because it is as if the “consolidated district had been originally formed under the principal act.” (§ 57500.)

iii. Effective Date

Finally, the effective date of the consolidation is the date set forth in LAFCO’s resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters approved the consolidation. (§ 57202(a).) If LAFCO’s resolution does not establish an effective date, the consolidation is effective on the date the consolidation is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

4. Petition-Initiated Consolidation

Special districts may be consolidated by petition signed by the requisite number of registered voters or landowners, depending upon the specifics of the district’s statutory authorization. Prior to circulating any petition, however, the proponents for change of organization must file a notice of intention to circulate a petition with LAFCO. (§ 56700.4(a).) After a notice of intention to circulate the petition is filed, the petition may be circulated for the appropriate signatures. (§ 56700.4(b).) For a consolidation, voters or landowners must sign a petition as follows:

- (a) For registered voter districts, by not less than 5 percent of the registered voters within each of the several districts.
- (b) For landowner-voter districts, by landowner-voters within each of the several districts constituting not less than 5 percent of the number of landowner-voters owning land within each of the several districts and who also own not less than 5 percent of the assessed value of land within each of the several districts.

(§ 56865.)

The petitioners must submit an Application for consolidation to the LAFCO Executive Officer of the principal county. (§ 56658(a).) Like a Resolution of Application filed by districts wishing to consolidate, the Application must contain those elements set forth in Appendix “B” to this Memorandum. Additionally, the petition must contain all of the requirements delineated in Section 56700(a) attached to this Memorandum as Appendix “C.” Within 30 days, excluding Saturdays, Sundays, and holidays, after the date of receiving a petition, the Executive Officer must cause the petition to be reviewed by either the Registrar of Voters or County Assessor, and must “prepare a certificate of sufficiency indicating whether the petition is signed by the requisite number of signers.” (§ 56706(a).) Once an application is deemed complete by the Executive Officer, the Executive Officer issues a certificate of filing to the applicant. (§ 56658(d)-(h).) Within 90 days of issuing the certificate of filing, the Executive Officer must set a hearing. (§ 56658(h).)

Before LAFCO may take action on a proposal to consolidate, LAFCO must hold a public hearing on the proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating the proposal to consolidate. LAFCO may also impose terms and conditions pursuant to Section 56885.5 and 56886.

**a. Protest Election/Certificate of Completion**

LAFCO is still not required to place the consolidation before the voters unless written protests have been filed meeting 1) the threshold in Section 57077.2(b)(2), if a subject agency has not objected by resolution to the proposal, or 2) the threshold in Section 57077.2(b)(3), if a subject agency has objected by resolution to the proposal. (§ 57077.2(a).) These threshold limits are described in greater detail in Section A(3) of this Memorandum, above.

If LAFCO is required to submit a consolidation to the voters pursuant to Section 57077.2(b)(2), the election will be held within the territory of each district ordered to be consolidated. (§ 57118(a).) LAFCO’s resolution must provide the question to be submitted to the voters, specify any consolidation terms and conditions, and state the vote required to confirm the consolidation. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters within the territory of any subject district vote against the consolidation, LAFCO must adopt a certificate of completion terminating proceedings. (§§ 57177.5(b), 57179.) However, if the majority of the voters in each district vote to consolidate the districts, LAFCO must execute a certificate of completion confirming the order of consolidation. (§ 57177.5(a).) If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

**b. Effect of Consolidation<sup>8</sup>**

After the LAFCO Executive Officer files the requisite certificate of completion, the consolidated district succeeds to all the “powers, rights, duties, obligations, functions, and properties of all predecessor districts” which consolidated to form a consolidated district. (§ 57500.) Included in these rights and duties, a consolidated district becomes liable for all debts of the predecessor districts. (§ 57502.) The consolidated district “steps into the shoes” of the predecessor districts because it is as if the “consolidated district had been originally formed under the principal act.” (§ 57500.)

**c. Effective Date**

Finally, the consolidation’s effective date is the date set forth in LAFCO’s resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the consolidation. (§ 57202(a).) If LAFCO’s resolution does not establish an effective date, the consolidation is effective on the date the consolidation is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

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<sup>8</sup> See, Footnote 4.

**5. Additional Procedures for Consolidation of Districts Not Formed by Same Principal Act**

Districts not formed under the same principal act may be consolidated if certain procedures are followed. In the past, only districts formed under the same principal act could be consolidated into a single district. For instance, under the former law, two municipal water districts could consolidate but an irrigation district and a municipal water district could not, even though they may have exercised many of the same powers and duties. After the 2004 and 2007 amendments,<sup>9</sup> the Act now permits the consolidation of two or more special districts not formed pursuant to the same principal act. For example, an irrigation district may consolidate with a municipal water district through LAFCO-initiated, district-initiated, or petition-initiated procedures as outlined above, subject to the following additional requirements and limitations.

**a. LAFCO-Initiated Consolidation**

As outlined in Section A(2) above, LAFCO may initiate a consolidation of districts. Where LAFCO initiates a consolidation of two or more special districts not formed pursuant to the same principal act, the proposal must be consistent with a recommendation or conclusion of a study prepared pursuant to Section 56378 or the written statement of determinations specified in Section 56430(a). (§ 56826.5(b).) The proposal must also ensure that services currently provided by both districts will not be hampered, that public services costs of the proposal are likely to be less than, or substantially similar to the costs of alternate means of providing the service, and that the consolidation promotes public access and accountability for community service needs and financial resources. (§ 56826.5(b)(1) – (3).)

**b. District-Initiated Consolidation**

As outlined in Section A(3)(a) and A(3)(b) above, special districts may initiate consolidation by resolution of application—by one district or jointly by two or more districts. In addition to all of the requirements delineated in Section 56700(a) and attached to this Memorandum as Appendix “C,” Section 56700(b) requires that an Application for consolidation of districts not formed pursuant to the same principal act must either:

- (1) Designate the district that shall be the successor and specify under which principal act the successor shall conduct itself;  
or
- (2) State that the proposal requires the formation of a new district and includes a plan for services prepared pursuant to Section 56653.

**c. Petition-Initiated Consolidation**

As outlined in Section A(4) above, special districts may be consolidated by petition signed by the requisite number of registered voters or landowners, depending upon the specifics of the district’s statutory authorization. Proponents must file a notice of intention with LAFCO,

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<sup>9</sup> Assembly Bill 2067, passed on September 10, 2004 and effective January 1, 2005, amended Section 56030 to permit consolidation of districts not formed pursuant to the same principal act. The Bill contained a sunset provision reinstating the prior law on July 1, 2008. Senate Bill 819 deleted the sunset provision effective January 1, 2008.

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circulate a petition for signatures, and submit an Application for consolidation. (§ 56700.4(a) and (b); § 56865(a) and (b).) In addition to all of the requirements delineated in Section 56700(a) and attached to this Memorandum as Appendix “C,” the Application for consolidation of districts not formed pursuant to the same principal act must do either of the following:

- (1) Designate the district that shall be the successor and specify under which principal act the successor shall conduct itself; or
- (2) State that the proposal requires the formation of a new district and includes a plan for services prepared pursuant to Section 56653.

(§ 56700(b).)

d. **Limitations on Consolidation of Districts Not Formed Under Same Act**

LAFCO may approve a proposal for reorganization that includes the consolidation of two or more special districts not formed pursuant to the same principal act only if both the following conditions are met:

- (1) The commission is able to designate a successor or successors, or form a new district or districts, authorized by their respective principal acts to deliver all of the services provided by the consolidating districts at the time of consolidation.
- (2) The commission determines that public services costs of the proposal are likely to be less than or substantially similar to the costs of alternate means of providing the service, and the consolidation promotes public access and accountability for community service needs and financial resources.

(§ 56826.5(a); § 56881(b).) The Act also requires LAFCO to determine whether any service provided at the time could be discontinued due to a lack of authority under the principal act of the successor. (§ 56886.5(b).) For example, an irrigation district and municipal water district may not be consolidated into a single irrigation district if the laws governing the resulting irrigation district would not allow it to perform all the functions of the extinguished water district. In this case, the commission shall consider the formation of a new district that is authorized to provide the service or services. (Id.)

**B. DISSOLUTION**

**1. Brief History**

As a result of the Gotch Amendment (AB 1335) to the Cortese-Knox Local Government Reorganization Act of 1985, proposals to dissolve a special district may be initiated by LAFCO itself. (§ 56000.) The purpose of the Gotch Amendment was to consolidate overlapping districts into a more coherent system of local government or dissolve districts that have outlived their purpose. However, by 2000, five years after the passage of the Gotch Amendment, only one LAFCO-initiated proposal had led to the dissolution of a special district. (Little Hoover Commission, Special Districts: Relics of the Past or Resources for the Future? 9 (2000).)

The Act defines “dissolution” as:

The disincorporation, extinguishment, or termination of the existence of a district and the cessation of all its corporate powers, except as the commission may otherwise provide pursuant to Section 56886 or for the purpose of winding up the affairs of the district.

(§ 56035.)

At present, the procedures for a dissolution may be commenced by the district, by petition, or by LAFCO itself.

**2. LAFCO-Initiated Dissolution**

A dissolution may be initiated by LAFCO if it is consistent with a recommendation or conclusion of a study prepared pursuant to Sections 56378, 56425, or 56430, and LAFCO makes the determinations specified in Section 56881(b). (§ 56375(a)(3).) Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence and conduct service reviews of the municipal services provided in the area for review.

Section 56881(b) requires LAFCO to make both of the following determinations with regard to the proposed dissolution:

- (1) Public service costs of a proposal that LAFCO is authorizing are likely to be less than or substantially similar to the costs of alternate means of providing the service.
- (2) The proposed dissolution promotes public access and accountability for community services needs and financial resources.

Before LAFCO may dissolve a district, LAFCO must hold a public hearing on the dissolution proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating the proposal to dissolve a district.

a. **Protest/Election/Certificate of Completion**

LAFCO is not required to place the dissolution before the voters, unless the required written protests have been filed as set out in Section 57113. (§ 57077.1(b)(3).) These threshold limits are detailed in Section A(2)(a) of this Memorandum, above. Additionally, if a change of organization only consists of a single dissolution, and the dissolution is “consistent with a prior action of the commission pursuant to Sections 56378, 56425, or 56430,<sup>10</sup> the commission may” order the dissolution without an election after “holding at least one noticed public hearing, and after conducting protest proceedings in accordance with this part.” (§ 57077.1(c)(2).) However, LAFCO must terminate proceedings entirely if a majority protest exists pursuant to Section 57078. (Id.)

If the requirements of Section 57077.1(c) are not met, and if a sufficient protest is made, LAFCO is required to submit the dissolution to the voters.<sup>11</sup> LAFCO’s resolution must designate the territory in which the elections will be held (which, in the case of a district dissolution, is the territory of the district ordered to be dissolved), provide the question to be submitted to the voters, specify any dissolution terms and conditions, and state the vote required to confirm the dissolution. (§§ 57115 & 57118.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the dissolution, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) However, if the majority of the voters vote for the dissolution of a district, LAFCO must execute a certificate of completion confirming the order of dissolution. (§ 57176.) If no election is required to be held, the LAFCO Executive Officer must still execute a certificate of completion and make the requisite filings. (§ 57200.)

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<sup>10</sup> Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence, and to conduct service reviews of the municipal services provided in the area under review.

<sup>11</sup> Section 57102, however, permits the commission to order the dissolution without an election (except in the case of a hospital district dissolution) if it makes any of the following findings specified in Section 57102. Section 57102 provides as follows:

a) In any resolution ordering a dissolution, the commission shall make findings upon one or more of the following matters:

- (1) That the corporate powers have not been used, as specified Section 56871, and that there is a reasonable probability that those powers will not be used in the future.
- (2) That the district is a registered-voter district and is uninhabited.
- (3) That the board of directors of the district has, by unanimous resolution, consented to the dissolution of the district.
- (4) That the commission has authorized, pursuant to subdivision (a) of Section 57077.1, the dissolution of the district without an election.

(b) If the commission makes any of the findings specified in subdivision (a), the commission may, except as otherwise provided in Section 57103, order the dissolution of the district without election.

The requirement provisions of Section 57077.1(c) control over the provisions of Section 57102, as applicable.

**b. Effect of Dissolution**<sup>12</sup>

After the LAFCO Executive Officer files the requisite certificate of completion, the dissolved district is extinguished and all of its corporate powers cease except to wind up the affairs of the district, or as required by a term or condition imposed on the dissolution by LAFCO. (§ 57450.) If the terms and conditions of the dissolution call for annexation of the district into a single existing district, the remaining assets of the dissolved district are distributed to the existing successor district. (§§ 57451(d), 56886.) If the dissolution calls for annexation and distribution of remaining assets of a dissolved district into two or more existing districts, then the existing district containing the greater assessed value of all taxable property within the territory of the dissolved district shall become the successor district. (§ 57451(e).) For dissolution without annexation, a city or county will become the successor agency for the district depending on which one contains the greatest assessed value of all taxable property within the territory of the dissolved district. (§ 57451(c).) A successor agency collects the dissolved district's assets and is empowered to wind up the business of the district - ensuring that all debts are paid, distributing assets and all other lawful purposes for the benefit of the lands, inhabitants and taxpayers within the territory of the dissolved district, as far as practicable. (§ 57452.) In the case of dissolution with annexation, the successor agency "steps into the shoes" of the former district and assumes its corporate powers over the dissolved district's territory. (§ 56886.)

**c. Effective Date**

Finally, the dissolution's effective date is the date set forth in LAFCO's resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the dissolution. (§ 57202(a).) If LAFCO's resolution does not establish an effective date, the dissolution is effective on the date the dissolution is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

**3. District-Initiated Dissolution (Either by Dissolving District or Affected Local Agency)**

The legislative body of a district may begin the process to dissolve the district by adopting a Resolution of Application, which must be submitted to LAFCO. (§§ 56654(a); 56858(a).) The Application must contain the components set forth in Appendix "B" to this Memorandum, which include, in part, a Resolution of Application (see Appendix "C") and a Plan for Providing Services (see Appendix "D"). At least 21 days before adopting the resolution, however, the district may give mailed notice to LAFCO and any affected districts and counties. (§ 56654(c).)

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<sup>12</sup> This section of the Memorandum summarizes the default general conditions applicable to dissolutions, as set out in Section 57450 *et seq.* Pursuant to Section 57302, these general conditions only apply if LAFCO does not impose any of the specific terms and conditions authorized under Section 56886. In the event LAFCO does impose terms and conditions under Section 56886, Section 57302 states that those terms and conditions become the "exclusive terms and conditions of the change of organization or reorganization and shall control over the general provisions of this part." The language in Section 57302 conflicts with newly enacted revisions to Section 56886, which specifies that terms and conditions imposed under Section 56886 "shall prevail in the event of a conflict between a specific term and condition authorized [pursuant to Section 56866] and any of the general provisions [set out at Section 57300 *et seq.*]." The Legislative Committee of CALAFCO will undertake a review of the inconsistencies between Sections 56886 and 57302.

Not less than five days prior to the hearing, the Executive Officer must prepare a report on the Application, including his or her recommendation on the Application, and must give a copy of the report to every affected district, agency, and city. (§ 56665.) At the hearing, LAFCO hears and receives written and oral protests and evidence as well as the Executive Officer's report and the Plan for Providing Services. (§ 56666(b).) Section 56668 requires LAFCO to evaluate the dissolution proposal pursuant to the factors set forth in Appendix "A" to this Memorandum. LAFCO may also impose terms and conditions on the dissolution pursuant to Section 56885.5 and 56886.

**a. Protest/Election/Certificate of Completion**

LAFCO is required to place the dissolution before the voters if written protests have been filed meeting Section 57077.1(b)(1), where a subject agency has not objected by resolution to the proposal, or Section 57077.1(b)(2), if a subject agency has objected by resolution to the proposal. (§ 57077.1(a).) Section 57077.1(b)(1) sets forth the following protest threshold:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, the affected territory.
- (B) In the case of a landowner-voter district, that the territory is uninhabited, and that protests have been signed by at least 25 percent of the number of landowners within the affected territory owning at least 25 percent of the assessed value of land within the territory.

Alternatively, Section 57077.1(b)(2) requires that written protests meet the following threshold:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within any subject agency within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory.

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- (B) In the case of a landowner-voter district, that the territory is uninhabited, and that protests have been signed by at least 25 percent of the number of landowners within any subject agency within the affected territory, owning at least 25 percent of the assessed value of land within the subject agency.

If LAFCO is required to submit a dissolution to the voters pursuant to Section 57077.1(b), the election will be held within the territory of the district ordered to be dissolved.<sup>13</sup> (§ 57118(a).) LAFCO's resolution must provide the question to be submitted to the voters, specify any dissolution terms and conditions, and state the vote required to confirm the dissolution. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the dissolution, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) However, if the majority of the voters vote for the dissolution of a district, LAFCO must execute a certificate of completion confirming the order of dissolution. (§ 57176.) If no election is required to be held, the LAFCO Executive Officer must still execute a certificate of completion and make the requisite filings. (§ 57200.)

Notwithstanding the above, if a change of organization only consists of a single dissolution that is "consistent with a prior action of the commission pursuant to Sections 56378, 56425, or 56430,"<sup>14</sup> and the dissolution is "initiated by the district board," then LAFCO may "immediately approve and order the dissolution without an election or protest proceedings pursuant to this part." (§ 57077.1(c)(1).)<sup>15</sup> Alternatively, if a single dissolution is initiated by an affected local agency and if that single dissolution is "consistent with a prior action of the commission pursuant to Sections 56378, 56425, or 56430," then commission may" order the dissolution without an election after "holding at least one noticed public hearing, and after conducting protest proceedings in accordance with this part." (§ 57077.1(c)(2).) However, LAFCO must terminate proceedings entirely if a majority protest exists pursuant to Section 57078. (Id.)

**b. Effect of Dissolution**<sup>16</sup>

After the LAFCO Executive Officer files the requisite certificate of completion, the dissolved district is extinguished and all of its corporate powers cease, except to wind up the affairs of the district, or as required by a term and condition imposed on the dissolution by LAFCO. (§ 57450.) If the terms and conditions of the dissolution call for annexation of the district into a single existing district, the remaining assets of the dissolved district are distributed to the existing successor district. (§§ 57451(d), 56886.) If the dissolution calls for annexation and distribution of remaining assets of a dissolved district into two or more existing districts, then the existing district containing the greater assessed value of all taxable property within the

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<sup>13</sup> See, Footnote 22 regarding where an election is held for a reorganization consisting of dissolution with annexation.

<sup>14</sup> Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence, and to conduct service reviews of the municipal services provided in the area under review.

<sup>15</sup> See, Footnote 11.

<sup>16</sup> See, Footnote 12.

territory of the dissolved district shall become the successor district. (§ 57451(e).) For dissolution without annexation, a city or county will become the successor agency for the district depending on which one contains the greatest assessed value of all taxable property within the territory of the dissolved district. (§ 57451(c).) A successor agency collects the dissolved district's assets and is empowered to wind up the business of the district; ensuring that all debts are paid, distributing assets and all other lawful purposes for the benefit of the lands, inhabitants and taxpayers within the territory of the dissolved district, as far as practicable. (§ 57452.) In the case of dissolution with annexation, the successor agency "steps into the shoes" of the former district and assumes its corporate powers over the dissolved district's territory. (§ 56886.)

**c. Effective Date**

Finally, the dissolution's effective date is the date set forth in LAFCO's resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the dissolution. (§ 57202(a).) If LAFCO's resolution does not establish an effective date, the dissolution is effective on the date the dissolution is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

**4. Petition-Initiated Dissolution**

Special districts may be dissolved by petition signed by the requisite number of registered voters or landowners, which are set forth in Section 56870. Prior to circulating any petition, however, the proponent for change of organization must file a notice of intention to circulate a petition with LAFCO. (§ 56700.4(a).) After a notice of intention to circulate the petition is filed, the petition may be circulated for the appropriate signatures. (§ 56700.4(b).) Except as provided in Section 56871,<sup>17</sup> petitions for the dissolution of a district must be signed by:

- (a) For registered voter districts, by either of the following:
  - (1) Not less than 10 percent of the registered voters within the district.
  - (2) Not less than 10 percent of the number of landowners within the district who also own not less

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<sup>17</sup> Section 56871 sets forth alternative petition requirements if the petition for dissolution of a registered voter district is signed by three or more registered voters within the district (or by three or more landowners within a landowner-voter district) provided certain additional requirements are met. Under Section 56871, such a petition is deemed sufficient if the petition recites that the district has been in existence for at least three years, that the district has not used its corporate powers and that one or more of the following conditions have existed or now exist:

- (a) That during the three-year period preceding the date of the first signature upon the petition any of the following events have not occurred:
  - (1) There has not been a duly selected and acting quorum of the board of directors of the district.
  - (2) The board of directors has not furnished or provided services or facilities of substantial benefit to residents, landowners, or property within the district.
  - (3) The board of directors has not levied or fixed and collected any taxes, assessments, service charges, rentals, or rates or expended the proceeds of those levies or collections for district purposes.
- (b) That during the one-year period preceding the date of the first signature upon the petition a quorum of the duly selected and acting board of directors has not met for the purpose of transacting district business.
- (c) That, upon the date of the first signature upon the petition, the district had no assets, other than money in the form of cash, investments, or deposits.

than 10 percent of the assessed value of land within the district.

- (b) For landowner-voter districts, by not less than 10 percent of the number of landowner-voters within the district who also own not less than 10 percent of the assessed value of land within the district.

(§ 56870.)

Once a petition is qualified by the Executive Officer, the Executive Officer issues a certificate of filing to the applicant. (56658(d)-(h).) Within 90 days of issuing the certificate of filing, the Executive Officer must set a hearing. (§ 56658(h).) Within 35 days of the hearing, LAFCO must adopt a resolution making determinations approving or disapproving the proposal, with or without terms and conditions. (§ 56880.) If a conflicting proposal is submitted to LAFCO within 60 days of the submission of the proposal to dissolve, then LAFCO cannot approve the proposal to dissolve until it considers the conflicting proposal. (§ 56657.)

**a. Protest/Election/Certificate of Completion**

Where a subject agency has not objected by resolution, an election must be held if written protests are received meeting the voter/landowner petition requirements of Section 57077.1(b)(1). (§ 57077.1(a).) Where a subject agency files a resolution of objection, an election must be held if written protests have been filed meeting the threshold level set forth in Section 57077.1(b)(2). These thresholds are set forth in Section B(3)(a), above. Additionally, if a change of organization only consists of a single dissolution that is “consistent with a prior action of the commission pursuant to Sections 56378, 56425, or 56430,<sup>18</sup>” and the dissolution is initiated by petition, the commission may order the dissolution without an election after “holding at least one noticed public hearing, and after conducting protest proceedings in accordance with this part.” (§ 57077.1(c)(2).) However, LAFCO must terminate proceedings entirely if a majority protest exists pursuant to Section 57078. (*Id.*)<sup>19</sup>

If LAFCO is required to submit a dissolution to the voters pursuant to Section 57077.1(b), the election will be held and the measure must pass within the territory of each district ordered to be dissolved.<sup>20</sup> (§ 57118(a).) LAFCO’s resolution must provide the question to be submitted to the voters, specify any dissolution terms and conditions, and state the vote required to confirm the dissolution. (§ 57115.) The election procedures and requirements are set forth in Section 57125 *et seq.*

If an election is held and the majority of voters vote against a dissolution, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) However, if the majority of the voters vote for the dissolution, the LAFCO Executive Officer must execute a certificate of completion

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<sup>18</sup> Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence, and to conduct service reviews of the municipal services provided in the area under review.

<sup>19</sup> *See*, Footnote 11.

<sup>20</sup> *See*, Footnote 22 regarding where an election is held for reorganizations consisting of dissolution with annexation.

confirming the order of dissolution. (§ 57176.) If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

**b. Effect of Dissolution**<sup>21</sup>

After the LAFCO Executive Officer files the requisite certificate of completion, the dissolved district is extinguished and all of its corporate powers cease except to wind up the affairs of the district, or as required by a term or condition imposed on the dissolution by LAFCO. (§ 57450.) If the terms and conditions of the dissolution call for annexation of the district into a single existing district, the remaining assets of the dissolved district are distributed to the existing successor district. (§§ 57451(d), 56886.) If the dissolution calls for annexation and distribution of remaining assets of a dissolved district into two or more existing districts, then the existing district containing the greater assessed value of all taxable property within the territory of the dissolved district shall become the successor district. (§ 57451(e).) For dissolution without annexation, a city or county will become the successor agency for the district depending on which one contains the greatest assessed value of all taxable property within the territory of the dissolved district. (§ 57451(c).) A successor agency collects the dissolved district's assets and is empowered to wind up the business of the district - ensuring that all debts are paid, distributing assets and all other lawful purposes for the benefit of the lands, inhabitants and taxpayers within the territory of the dissolved district, as far as practicable. (§ 57452.) In the case of dissolution with annexation, the successor agency "steps into the shoes" of the former district and assumes its corporate powers over the dissolved district's territory. (§ 56886.)

**c. Effective Date**

Finally, the dissolution's effective date is the date set forth in LAFCO's resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the dissolution. (§ 57202(a).) If LAFCO's resolution does not establish an effective date, the dissolution is effective on the date the dissolution is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

**5. Dissolution with Annexation**

The Act's provisions expressly allow LAFCO to "select" a successor to "step into the shoes" of the dissolved district. Section 56886 permits LAFCO to impose a condition on a dissolution that will grant one agency all of the remaining assets of the dissolved district. (§ 56886(h) and (i).) When LAFCO imposes such conditions, the agency granted all of the dissolved district's remaining assets becomes the "successor" agency pursuant to Section 57451. Specifically, Section 57451(d) provides that:

If the terms and conditions provide that all of the remaining assets of a dissolved district shall be distributed to a single existing district, the single existing district is the successor.

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<sup>21</sup> See, Footnote 12.

In such an instance, for example, if one of the remaining assets of a dissolved district is that district's water distribution facilities, including pipelines and water treatment facilities, these assets will be put to use for the purpose of distributing water by the successor district. The provisions of Section 57463 support this conclusion. Section 57463 provides that after all debts are paid, any assets remaining may be used for any lawful purpose of the public agency to which the assets have been distributed for the benefit of the lands, inhabitants and taxpayers within the territory of the dissolved district, as far as practicable. (§ 57463.) Applying the intent of Section 57463 to the water distribution facilities example would allow the public agency to which the assets have been distributed to continue to use the water distribution facilities. In essence, the agency receiving the dissolved district's remaining assets, which may be the successor agency, steps into the shoes of the dissolved district.

a. **Initiation of Reorganization Consisting of Dissolution with Annexation**

A reorganization consisting of a dissolution with annexation may be initiated by petition, Resolution of Application by one special district, or if initiated pursuant to Section 56853, the reorganization can be initiated by the legislative bodies of two or more special districts.

i. **Protest/Election/Certificate of Completion**

When a reorganization application consists of a dissolution of one or more districts and the annexation of all or substantially all the territory into another district and the application is initiated by two or more districts pursuant to Section 56853, the protest thresholds to trigger an election are set out in Section 57077.3(b)(1)(A) and (B). Section 57077.3(b)(1)(A) and (B) provides as follows:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, the affected territory.
- (B) In the case of a landowner-voter district, that the territory is uninhabited, and that protests have been signed by at least 25 percent of the number of landowners within the affected territory, owning at least 25 percent of the assessed value of land within the territory.

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For proposals initiated by a single special district, or by petition, LAFCO must order the reorganization subject to confirmation by the voters if it receives protests meeting the following thresholds:

- (1) In the case of inhabited territory, protests have been signed by either of the following:
  - (A) At least 25 percent of the number of landowners within any subject agency within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (B) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory.
- (2) In the case of a landowner-voter district, the territory is uninhabited, and protests have been signed by at least 25 percent of the number of landowners within any subject agency within the affected territory, owning at least 25 percent of the assessed value of land within the subject agency.

(§ 57077.4(b)(1)(A) and (B).)

For dissolution with annexation initiated under Section 56853, if LAFCO is required to submit the reorganization to the voters pursuant to Section 57077.3(b), the election will be held and the measure must pass within the territory of each district ordered to be dissolved. (§ 57118(a).) On the other hand, if the dissolution with annexation is initiated by petition or by Resolution of Application by one district, and if there is sufficient protest under Section 57077.4, the election will be held separately within the territory of each affected district that has filed a petition meeting the requisite protest requirements.<sup>22</sup> LAFCO's resolution must provide the question to be submitted to the voters, specify any reorganization terms and conditions, and state the vote required to confirm the dissolution. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the reorganization, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) However, if the majority of the voters vote for the dissolution, the LAFCO Executive Officer must execute a certificate of completion confirming the order of reorganization. (§ 57176.) If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

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<sup>22</sup> Section 57118(f) requires that elections for reorganizations consisting of a dissolution and annexation be held separately within the territory of each affected district that has filed a petition meeting the requirements of Section 57077.4(b).

**C. MERGER**

**1. Brief History**

Prior to 1965, the state of the law in California was that the inclusion of the entire territory of a special district within the boundaries of a city resulted in the automatic merger of the special district into the city, thereby eliminating the special district. The rationale behind this doctrine, dubbed the “Doctrine of Automatic Merger,” was the avoidance of the “duplication of functions - otherwise two distinct governmental bodies claiming to exercise the same authority, powers and franchises simultaneously over the same territory would ‘produce intolerable confusion, if not constant conflict.’” (*City of Downey v. Downey Water Dist.* (1962) 202 Cal.App.2d 786, 792 (citations omitted).)

In 1965, the Legislature enacted the District Reorganization Act of 1965, effective September 17, 1965 (Stats 1965 ch 2043 §§ 2), adding Government Code section 56400 as follows:

The Legislature hereby declares that the doctrine of automatic merger of a district with a city or the merger by operation of law of a district with a city shall have and be given no further force or effect. The existence of a district shall not be extinguished or terminated as a result of the entire territory of such district being heretofore or hereafter included within a city unless such district be merged with such city as a result of proceedings taken pursuant to this division.

This very language is now part of the Act and is set forth in Section 56116.

A merger now can only occur as a result of proceedings taken pursuant to the Act. The term “merger” for purposes of the Act is defined as:

The termination of the existence of a district when the responsibility for the functions, services, assets, and liabilities of that district are assumed by a city as a result of proceedings taken pursuant to this division.

(§ 56056.)

**2. LAFCO-Initiated Merger**

LAFCO may initiate a merger of a district with a city if it is consistent with a recommendation or conclusion of a study prepared pursuant to Sections 56378, 56425, or 56430 and LAFCO makes the determinations specified in Section 56881(b). (§ 56375(a)(3).) Sections 56378, 56425, and 56430 require LAFCO to study existing agencies and make determinations regarding spheres of influence and conduct service reviews of the municipal services provided in the area for review. Section 56881(b) requires LAFCO to make all of the following determinations with regard to the proposed merger:

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- (1) Public service costs of a proposal that the LAFCO is authorizing are likely to be less than or substantially similar to the costs of alternate means of providing the service.
- (2) Promotes public access and accountability for community services needs and financial resources.

Before LAFCO may take action on a proposal to merger, LAFCO must hold a public hearing on the proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating a merger proposal.

All proposals for merger, except for proposals for the merger of an existing subsidiary district, also must consider the establishment of a subsidiary district as well.<sup>23</sup>

**a. Protest/Election/Certificate of Completion**

LAFCO is required to place a merger before the voters, regardless of whether a subject agency has objected, where written protests have been filed in accordance with Section 57113. (§ 57107(b)(3).) Notwithstanding Section 57107(b), the commission shall not order the merger without the consent of the subject city. (§ 57107(c).) Section 57113 requires LAFCO to submit a merger to the voters if LAFCO receives protests signed by the following:

- (a) In the case of inhabited territory, protests have been signed by either of the following:
  - (1) At least 10 percent of the number of landowners within any subject agency within the affected territory who own at least 10 percent of the assessed value of land within the territory. However, if the number of landowners within a subject agency is less than 300, the protests shall be signed by at least 25 percent of the landowners who own at least 25 percent of the assessed value of land within the territory of the subject agency.
  - (2) At least 10 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory. However, if the number of voters entitled to vote within a subject agency is less than 300, the protests shall be signed by at least 25 percent of the voters entitled to vote.

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<sup>23</sup> Section 56118 specifically provides: “Except for a proposal for the merger of a then existing subsidiary district, any proposal for a merger or establishment of a subsidiary district authorized by this division shall contain a request in the alternative, requesting either a merger or the establishment of a subsidiary district, as may be determined during the course of the proceedings. Any proposal requesting only merger shall be deemed to also include a request for the establishment of a subsidiary district and any proposal requesting only the establishment of a subsidiary district shall be deemed to also include a request for merger.”

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**ATTORNEYS AT LAW**

- (b) In the case of a landowner-voter district, the territory is uninhabited and protests have been signed by at least 10 percent of the number of landowners within any subject agency within the affected territory, who own at least 10 percent of the assessed value of land within the territory. However, if the number of landowners entitled to vote within a subject agency is less than 300, protests shall be signed by at least 25 percent of the landowners entitled to vote.

If required to submit a merger to the voters, the election will be held within the “entire territory of each district ordered to be merged with. . . or both within the district and within the entire territory of the city outside the boundaries of the district.” (§ 57118(b).)<sup>24</sup> LAFCO’s resolution must also provide the question to be submitted to the voters, specify any merger terms and conditions, and state the vote required to confirm the merger. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the merger, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) In addition, no new proposal for a merger or establishment of a subsidiary district involving the same district may be filed within two years of the date of the certificate of termination proceedings. (§ 57112 (a).) LAFCO may waive this prohibition if it finds the prohibition is detrimental to the public interest. (§ 57112(b).) However, if the majority of the voters vote for a merger, the LAFCO Executive Officer must execute a certificate of completion confirming the order of merger.<sup>25</sup> (§ 57177.) If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

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<sup>24</sup> Pursuant to Section 57108, however, if a petition meeting certain requirements is submitted prior to the conclusion of the protest hearing, the election will only be called, held and conducted within the district to be merged with, or established as, a subsidiary district of a city. Section 57108 provides as follows:

At any time prior to the conclusion of the protest hearing by the commission ordering the district to be merged with or established as a subsidiary district of a city, a petition may be filed with the executive officer referring, by date of adoption, to the commission’s resolution making determinations and requesting that any election upon that question be called, held, and conducted only within that district. Any petition so filed shall be immediately examined and certified by the executive officer by the same method and in the same manner as provided in Sections 56707 to 56711, inclusive, for the examination of petitions by the executive officer.

The commission shall forward the proposal to the affected city, and the affected city shall call, hold, and conduct any election upon the question of a merger or the establishment of a subsidiary district only within the district to be merged or established as a subsidiary district, if the executive officer certifies that any petition so filed was signed by either of the following:

- (a) In the case of a registered voter district, by not less than 10 percent of the registered voters of the district.
- (b) In the case of a landowner-voter district, by not less than 10 percent of the number of landowner-voters within the district who also own not less than 10 percent of the assessed value of land within the district.

<sup>25</sup> Section 57177 establishes additional requirements for certificates of completion confirming a merger and/or establishment of a subsidiary district.

**b. Effect of Merger**<sup>26</sup>

On the effective date of the merger, the district ceases to exist and all district funds and all district property is vested in the city. (§§ 57525 & 57526.) The city becomes liable on all debts of the merged district. (§ 57531.) The city must use district funds and property to pay outstanding bonds and other obligations of the merged district. (§ 57528.) If any debts are to be paid from taxes levied on property in the district, the city council will collect those taxes as they become due as provided for under the principal act of the merged district. (§ 57529.) All funds that are unencumbered by debt may be used for any lawful purpose by the city, however, the city, "so far as may be practicable," shall use those funds to benefit the land and inhabitants within the former merged district area. (§ 57533.)

**c. Effective Date**

Finally, the merger's effective date is the date set forth in LAFCO's resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the merger. (§ 57202(a).) If LAFCO's resolution does not establish an effective date, the merger is effective on the date the merger is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

**3. District/City-Initiated Merger**

The legislative body of a district or city wishing to merge with a city or district must submit a Resolution of Application to the LAFCO Executive Officer of the principal county. (§ 56658(a).) The Application must contain the components set forth in Appendix "B" to this Memorandum, which include, in part, a Resolution of Application (see Appendix "C") and a Plan for Providing Services (see Appendix "D").

Within 30 days of receiving the Application, the Executive Officer must determine if it is complete and acceptable for filing. (§ 56658(c).) If no determination is made within this time frame and the appropriate fees have been paid, then the Application shall be deemed to have been accepted for filing. (§ 56658(e).) The Executive Officer must accept an Application for filing if it is in the form prescribed by LAFCO and it contains all the information required in Appendix "B." (§ 56658(e).) Within 90 days of accepting a proposal for filing, the Executive Officer must set a hearing date. (§ 56658(h).)

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<sup>26</sup> This section of the Memorandum summarizes the default general conditions applicable to mergers, as set out in Section 57525 *et seq.* Pursuant to Section 57302, these general conditions only apply if LAFCO does not impose any of the specific terms and conditions authorized under Section 56886. In the event LAFCO does impose terms and conditions under Section 56886, Section 57302 states that those terms and conditions become the "exclusive terms and conditions of the change of organization or reorganization and shall control over the general provisions of this part." The language in Section 57302 conflicts with newly enacted revisions to Section 56886, which specifies that terms and conditions imposed under Section 56886 "shall prevail in the event of a conflict between a specific term and condition authorized [pursuant to Section 56866] and any of the general provisions [set out at Section 57300 *et seq.*]." The Legislative Committee of CALAFCO will undertake a review of the inconsistencies between Sections 56886 and 57302.

Before the hearing, the Executive Officer must prepare a report on the Application, including his or her recommendation on the Application and give a copy of the report to every affected district, agency, and city. (§ 56665.) At the hearing, LAFCO hears and receives written and oral protests and evidence as well as the Executive Officer's report and the Plan for Providing Services. (§ 56666.) Section 56668 requires LAFCO to consider the factors set forth in Appendix "A" to this Memorandum in evaluating the merger proposal. LAFCO may also impose terms and conditions pursuant to Section 56885.5 and 56886.

**a. Protest/Election/Certificate of Completion**

LAFCO is required to place a merger before the voters, if written protests have been filed meeting the requirements of Section 57107(b)(1), where a subject agency has not objected by resolution to the proposal, or Section 57107(b)(2), where a subject agency has objected by resolution to the proposal. (§ 57107(a).) Notwithstanding Section 57107(b), the commission shall not order the merger without the consent of the subject city. (§ 57107(c).) Section 57107(b)(1) sets forth the following protest threshold:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, the affected territory.
- (B) In the case of a landowner-voter district, that the territory is uninhabited, and that protests have been signed by at least 25 percent of the number of landowners within the affected territory owning at least 25 percent of the assessed value of land within the territory.

Section 57107(b)(2) requires the following protest threshold:

- (A) In the case of inhabited territory, protests have been signed by either of the following:
  - (i) At least 25 percent of the number of landowners within any subject agency within the affected territory who own at least 25 percent of the assessed value of land within the territory.
  - (ii) At least 25 percent of the voters entitled to vote as a result of residing within, or owning land within, any subject agency within the affected territory.

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- (B) In the case of a landowner-voter district, that the territory is uninhabited and protests have been signed by at least 25 percent of the number of landowners within any subject agency within the affected territory, owning at least 25 percent of the assessed value of land within the subject agency.

If LAFCO is required to submit a merger to the voters pursuant to Section 57107, the election will be held within the “entire territory of each district ordered to be merged with. . . or both within the district and within the entire territory of the city outside the boundaries of the district.” (§ 57118(b).)<sup>27</sup> LAFCO’s resolution must provide the question to be submitted to the voters, specify any terms and conditions, and state the vote required to confirm the merger. (§ 57115.) The election procedures and requirements are set forth in Section 57125 *et seq.*

If an election is held and the majority of voters vote against the merger, LAFCO must adopt a certificate of termination of proceedings. (§ 57179.) In addition, no new proposal for a merger or establishment of a subsidiary district involving the same district may be filed within two years of the date of the certificate of termination proceedings. (§ 57112(a).) LAFCO may waive this prohibition if it finds the prohibition is detrimental to the public interest. (§ 57112(b).) However, if the majority of the voters vote for the merger, the LAFCO Executive Officer must execute a certificate of completion confirming the order of merger. (§ 57177.)<sup>28</sup> If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

**b. Effect of Merger**<sup>29</sup>

On the effective date of the merger, the district ceases to exist and all district funds and all district property is vested in the city. (§§ 57525 & 57526.) The city becomes liable on all debts of the merged district. (§ 57531.) The city must use district funds and property to pay outstanding bonds and other obligations of the merged district. (§ 57528.) If any debts are to be paid from taxes levied on property in the district, the city council will collect those taxes as they become due as provided for under the principal act of the merged district. (§ 57529.) All funds that are unencumbered by debt may be used for any lawful purpose by the city, however, the city, “so far as may be practicable,” shall use those funds to benefit the land and inhabitants within the former merged district area. (§ 57533.)

**c. Effective Date**

Finally, the merger’s effective date is the date set forth in LAFCO’s resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the merger. (§ 57202(a).) If LAFCO’s resolution does not establish an effective date, the merger is effective on the date the merger is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

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<sup>27</sup> See, Footnote 24.

<sup>28</sup> See, Footnote 25.

<sup>29</sup> See, Footnote 26.

**4. Petition-Initiated Merger**

A district of limited powers which overlaps a city may be merged into a city by petition signed by the requisite number of registered voters or landowners, depending upon the specifics of the district's statutory authorization. Prior to circulating any petition, however, the proponents for change of organization must file a notice of intention to circulate a petition with LAFCO. (§ 56700.4(a).) After a notice of intention to circulate the petition is filed, the petition may be circulated for the appropriate signatures. (§ 56700.4(b).) For a merger, voters or landowners must sign a petition as follows:

- (a) For a registered voter district, by either of the following:
  - (1) Five percent of the registered voters of the district.
  - (2) Five percent of the registered voters residing within the territory of the city outside the boundaries of the district.
- (b) For a landowner-voter district, by either of the following:
  - (1) Five percent of the number of landowner-voters within the district who also own not less than 5 percent of assessed value of land within the district.
  - (2) Five percent of the registered voters residing within the territory of the city outside the boundaries of the district.

(§ 56866.)

The petitioners must submit an Application for merger to the LAFCO Executive Officer of the principal county. (§ 56658(a).) The Application must contain those elements set forth in Appendix "B" to this Memorandum. Additionally, the petition must contain all of the requirements delineated in Section 56700 attached to this Memorandum as Appendix "C." Once a petition is qualified by the Executive Officer, the Executive Officer issues a certificate of filing to the applicant. (§ 56658(d)-(h).) Within 90 days of issuing the certificate of filing, the Executive Officer must set a hearing. (§ 56658(h).)

Before LAFCO may take action on a merger proposal, LAFCO must hold a public hearing on the proposal or report and recommendation of a reorganization committee. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix "A" to this Memorandum in evaluating the proposal. LAFCO may also impose terms and conditions pursuant to Section 56885.5 and 56886.

a. **Protest/Election/Certificate of Completion**

LAFCO is required to place a merger before the voters, if written protests have been filed meeting the requirements of Section 57107(b)(1), where a subject agency has not objected by resolution to the proposal, or Section 57107(b)(2), where a subject agency has objected by resolution to the proposal. (§ 57107(a).) These threshold limits are delineated in Section C(3)(a), above. Notwithstanding Section 57107(b), the commission shall not order the merger without the consent of the subject city. (§ 57107(c).)

If LAFCO is required to submit a merger to the voters pursuant to Section 57107, the election will be held within the “entire territory of each district ordered to be merged with. . . or both within the district and within the entire territory of the city outside the boundaries of the district.” (§ 57118(b).)<sup>30</sup> LAFCO’s resolution must provide the question to be submitted to the voters, specify any merger terms and conditions, and state the vote required to confirm the merger. (§ 57115.) The election procedures and requirements are set forth in Section 57125 et seq.

If an election is held and the majority of voters vote against the merger, LAFCO must adopt a certificate of termination proceedings. (§ 57179.) However, if the majority of the voters vote for the merger, LAFCO Executive Officer must execute a certificate of completion confirming the order of merger. (§ 57177.)<sup>31</sup> If no election is required to be held, LAFCO must still execute a certificate of completion and make the requisite filings. (§ 57200.)

b. **Effect of Merger**<sup>32</sup>

On the effective date of the merger, the district ceases to exist and all district funds and all district property is vested in the city. (§§ 57525 & 57526.) The city becomes liable on all debts of the merged district. (§ 57531.) The city must use district funds and property to pay outstanding bonds and other obligations of the merged district. (§ 57528.) If any debts are to be paid from taxes levied on property in the district, the city council will collect those taxes as they become due as provided for under the principal act of the merged district. (§ 57529.) All funds that are unencumbered by debt may be used for any lawful purpose by the city, however, the city, “so far as practicable” shall use those funds to benefit the land and inhabitants within the former merged district area. (§ 57533.)

c. **Effective Date**

Finally, the merger’s effective date is the date set forth in LAFCO’s resolution, so long as it is neither earlier than the date the certificate of completion is executed, nor later than nine months after an election in which the majority of voters vote for the merger. (§ 57202(a).) If LAFCO’s resolution does not establish an effective date, the merger is effective on the date the merger is recorded by the county recorder, or if there are two counties involved, on the last date of recordation. (§ 57202(c).)

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<sup>30</sup> See, Footnote 24.

<sup>31</sup> See, Footnote 25.

<sup>32</sup> See, Footnote 26.

**5. Limitations on Merger**

As stated above the subject city must consent to the merger. (§ 57107(c).)

**D. ESTABLISHMENT OF A SUBSIDIARY DISTRICT**

**1. A Brief History**

The procedures for establishment of a subsidiary district were established by the legislature in 1965 by the adoption of the District Reorganization Act of 1965, effective September 17, 1965 (Stats 1965 ch 2043 §§ 2), which added Government Code sections 56073, 56401, and 56405.

For purposes of the current version of the Act, the term “subsidiary district” is a district in which a city council is designated as, and empowered to act as, the ex officio board of directors of the district. (§ 56078.) A subsidiary district may be established if, upon the date of the commission’s order, the commission determines that either of the following situations exist:

- (a) The entire territory of the district is included within the boundaries of a city.
- (b) A portion or portions of the territory of the district are included within the boundaries of a city and that portion or portions meet both of the following requirements.
  - (1) Represents 70 percent or more of the area of land within the district. . . .
  - (2) Contains 70 percent or more of the number of registered voters who reside within the district as shown on the voters’ register in the office of the county clerk or registrar of voters.

(§ 57105.)

**2. LAFCO-Initiated Establishment of a Subsidiary District**

LAFCO may initiate the establishment of a subsidiary district if it is consistent with a recommendation or conclusion of a study prepared pursuant to Sections 56378, 56425, or 56430, and LAFCO makes the determinations specified in Section 56881(b). (§ 56375(a)(3).) Sections 56378, 56425, and 56430 require LAFCO to study existing agencies, to make determinations regarding spheres of influence, and to conduct service reviews of the municipal services provided in the area for review. Section 56881(b) requires LAFCO to make all of the following determinations with regard to the proposed establishment of a subsidiary district:

- (1) Public service costs of a proposal that the LAFCO is authorizing are likely to be less than or substantially similar to the costs of alternate means of providing the service.

- (2) The proposal promotes public access and accountability for community services needs and financial resources.

Before LAFCO may take action on a proposal for the establishment of a subsidiary district, LAFCO must hold a public hearing on the proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating the proposal for the establishment of a subsidiary district.

All proposals for establishment of a subsidiary district must also consider merger.<sup>33</sup>

**a. Protest/Election/Certificate of Completion**

The protest and election procedures and the requirements for a certificate of completion for the establishment of a subsidiary district initiated by LAFCO are the same as the procedures applicable to LAFCO-initiated mergers, as more particularly described in Section C(2)(a), above.

**b. Effect of the Establishment of a Subsidiary District**<sup>34</sup>

On or after the effective date of the establishment of a subsidiary district, the city council shall be designated, and shall be empowered to act as the ex officio board of directors of the district. The district shall continue to operate as a separate legal entity with all of the powers, rights, duties, obligations, and functions provided for by the principal act, except for any provisions relating to the selection or removal of the members of the board of directors of the district. (§ 57534.) If a court determines that holding office both as a member of city council and as a member of the board of directors is incompatible, the court may order that person to vacate the board of director position but not the position on city council. (§ 57535.) The court must order the position on the board of directors to be filled in accordance with the principal act of the subsidiary district. (§ 57535.)

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<sup>33</sup> Section 56118 specifically provides: “Except for a proposal for the merger of a then existing subsidiary district, any proposal for a merger or establishment of a subsidiary district authorized by this division shall contain a request in the alternative, requesting either a merger or the establishment of a subsidiary district, as may be determined during the course of the proceedings. Any proposal requesting only merger shall be deemed to also include a request for the establishment of a subsidiary district and any proposal requesting only the establishment of a subsidiary district shall be deemed to also include a request for merger.”

<sup>34</sup> This section of the Memorandum summarizes the default general conditions applicable to establishment of a subsidiary district, as set out in Section 57525 et seq. Pursuant to Section 57302, these general conditions only apply if LAFCO does not impose any of the specific terms and conditions authorized under Section 56886. In the event LAFCO does impose terms and conditions under Section 56886, Section 57302 states that those terms and conditions become the “exclusive terms and conditions of the change of organization or reorganization and shall control over the general provisions of this part.” The language in Section 57302 conflicts with newly enacted revisions to Section 56886, which specifies that terms and conditions imposed under Section 56886 “shall prevail in the event of a conflict between a specific term and condition authorized [pursuant to Section 56866] and any of the general provisions [set out at Section 57300 et seq.].” The Legislative Committee of CALAFCO will undertake a review of the inconsistencies between Sections 56886 and 57302.

**c. Effective Date of the Establishment of a Subsidiary District**

The effective date for the establishment of a subsidiary district is the same as the effective date for a merger, as more particularly described in Section C(2)(c), above.

**3. District-Initiated Establishment of a Subsidiary District**

The legislative body of a district wishing to establish itself as a subsidiary district may submit a Resolution of Application to the LAFCO Executive Officer of the principal county. (§ 56658(a).) The Application must contain the components set forth in Appendix “B” to this Memorandum, which include, in part, a Resolution of Application (see Appendix “C”) and a Plan for Providing Services (see Appendix “D”).

Before the hearing, the Executive Officer must prepare a report on the Application including his or her recommendation on the Application and give a copy of the report to every affected district, agency, and city. (§ 56665.) At the hearing, LAFCO hears and receives written and oral protests and evidence as well as the Executive Officer’s report and the Plan for Providing Services. (§ 56666.) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating the proposal. LAFCO may also impose terms and conditions pursuant to Section 56885.5 and 56886.

**a. Protest/Election/Certificate of Completion**

The protest and election procedures and the requirements for a certificate of completion for the establishment of a subsidiary district initiated by a district are the same as the procedures applicable to district-initiated mergers, as more particularly described in Section C(3)(a), above.

**b. Effect of the Establishment of a Subsidiary District<sup>35</sup>**

On or after the effective date of the establishment of a subsidiary district, the city council shall be designated, and shall be empowered to act as the ex officio board of directors of the district. The district shall continue to operate as a separate legal entity with all of the powers, rights, duties, obligations, and functions provided for by the principal act, except for any provisions relating to the selection or removal of the members of the board of directors of the district. (§ 57534.) If a court determines that holding office both as a member of city council and as a member of the board of directors is incompatible, the court may order that person to vacate the board of director position but not the position on city council. (§ 57535.) The court must order the position on the board of directors to be filled in accordance with the principal act of the subsidiary district. (§ 57535.)

**c. Effective Date of the Establishment of a Subsidiary District**

The effective date for the establishment of a subsidiary district is the same as the effective date for a merger, as more particularly described in Section C(3)(c), above.

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<sup>35</sup> See, Footnote 34.

**4. City-Initiated Establishment of a Subsidiary District**

The legislative body of a city wishing to establish a subsidiary district may submit a Resolution of Application to the LAFCO Executive Officer of the principal county. (§ 56658(a).) The Application must contain the components set forth in Appendix “B” to this Memorandum, which include, in part, a Resolution of Application (see Appendix “C”) and a Plan for Providing Services (see Appendix “D”).

Section 56861 requires LAFCO to provide notice to subject districts within ten days of receiving such a proposal. Subject districts may then either 1) consent to the proposal or 2) adopt a resolution of intent to submit an alternative proposal. If a subject district files a resolution of intention to file an alternative proposal, the Executive Officer may not take further action on the original proposal for 70 days. (§ 56862.) If the subject district fails to submit an alternative proposal during that 70 day period, it is deemed to have consented to the original proposal. (*Id.*) If the subject district submits a timely alternative proposal, the Executive Officer will analyze and report on both the original proposal and the alternative proposal so that “both proposals may be considered simultaneously at a single hearing.” (*Id.*)

Before LAFCO may take action on a proposal for the establishment of a subsidiary district, LAFCO must hold a public hearing on the proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating a proposal for the establishment of a subsidiary district. LAFCO may also impose terms and conditions pursuant to Sections 56885.5 and 56886.

**a. Protest/Election/Certificate of Completion**

The protest and election procedures and the requirements for a certificate of completion for the establishment of a subsidiary district initiated by a city are the same as the procedures applicable to city initiated mergers, as more particularly described in Section C(3)(a), above.

**b. Effect of the Establishment of a Subsidiary District<sup>36</sup>**

On or after the effective date of the establishment of a subsidiary district, the city council shall be designated, and shall be empowered to act as the ex officio board of directors of the district. The district shall continue to operate as a separate legal entity with all of the powers, rights, duties, obligations, and functions provided for by the principal act, except for any provisions relating to the selection or removal of the members of the board of directors of the district. (§ 57534.) If a court determines that holding office both as a member of city council and as a member of the board of directors is incompatible, the court may order that person to vacate the board of director position but not the position on city council. (§ 57535.) The court must order the position on the board of directors to be filled in accordance with the principal act of the subsidiary district. (§ 57535.)

**c. Effective Date of the Establishment of a Subsidiary District**

The effective date for the establishment of a subsidiary district is the same as the effective date for a merger, as more particularly described in Section C(3)(c), above.

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<sup>36</sup> See, Footnote 34.

**5. Petition-Initiated Establishment of a Subsidiary District**

A proposal to establish a district of limited powers as a subsidiary district of a city may be initiated by petition. Section 56866 requires that the petition be signed as follows:

- (a) For a registered voter district, by either of the following:
  - (1) Five percent of the registered voters of the district.
  - (2) Five percent of the registered voters residing within the territory of the city outside the boundaries of the district.
- (b) For a landowner-voter district, by either of the following:
  - (1) Five percent of the number of landowner-voters within the district who also own not less than 5 percent of assessed value of land within the district.
  - (2) Five percent of the registered voters residing within the territory of the city outside the boundaries of the district.

Section 56861 requires LAFCO to provide notice to subject districts within ten days of receiving such a proposal. Subject districts may then either 1) consent to the proposal or 2) adopt a resolution of intent to submit an alternative proposal. If a subject district files a resolution of intention to file an alternative proposal, the Executive Officer may not take further action on the original proposal for 70 days. (§ 56862.) If the subject district fails to submit an alternative proposal during that 70 day period, it is deemed to have consented to the original proposal. (*Id.*) If the subject district submits a timely alternative proposal, the Executive Officer will analyze and report on both the original proposal and the alternative proposal so that “both proposals may be considered simultaneously at a single hearing.” (*Id.*)

Before LAFCO may take action on a proposal for the establishment of a subsidiary district, LAFCO must hold a public hearing on the proposal. (§ 56662(b).) Section 56668 requires LAFCO to consider the factors set forth in Appendix “A” to this Memorandum in evaluating a proposal for the establishment of a subsidiary district. LAFCO may also impose terms and conditions pursuant to Section 56885.5 and 56886.

**a. Protest/Election/Certificate of Completion**

The procedures for protest, election and the requirements for the certificate of completion are the same as a petition-initiated merger, as more particularly described in Section C(4)(a), above.

**b. Effect of the Establishment of a Subsidiary District**<sup>37</sup>

On or after the effective date of the establishment of a subsidiary district, the city council shall be designated, and shall be empowered to act as the ex officio board of directors of the district. The district shall continue to operate as a separate legal entity with all of the powers, rights, duties, obligations, and functions provided for by the principal act, except for any provisions relating to the selection or removal of the members of the board of directors of the district. (§ 57534.) If a court determines that holding office both as a member of city council and as a member of the board of directors is incompatible, the court may order that person to vacate the board of director position but not the position on city council. (§ 57535.) The court must order the position on the board of directors to be filled in accordance with the principal act of the subsidiary district. (§ 57535.)

**c. Effective Date of the Establishment of a Subsidiary District**

The effective date for the establishment of a subsidiary district is the same as the effective date for a merger, as more particularly described in Section C(4)(a), above.

**6. Limitations on the Establishment of a Subsidiary District**

A proposal for the establishment of a subsidiary district cannot go forward without the consent of the subject city. (§ 57107(c).) Additionally a subsidiary district may only be established if on the date of LAFCO's order the statutory requirements regarding the amount of subsidiary district territory and the number of district voters within the governing city's territory are met.

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<sup>37</sup> See, Footnote 34.

**APPENDIX "A"**  
**FACTORS**

**Section 56668.**

Factors to be considered in the review of a proposal shall include, but not be limited to, all of the following:

- (a) Population and population density; land area and land use; per capita assessed valuation; topography, natural boundaries, and drainage basins; proximity to other populated areas; the likelihood of significant growth in the area, and in adjacent incorporated and unincorporated areas, during the next 10 years.
- (b) The need for organized community services; the present cost and adequacy of governmental services and controls in the area; probable future needs for those services and controls; probable effect of the proposed incorporation, formation, annexation, or exclusion and of alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas. "Services," as used in this subdivision, refers to governmental services whether or not the services are services which would be provided by local agencies subject to this division, and includes the public facilities necessary to provide those services.
- (c) The effect of the proposed action and of alternative actions, on adjacent areas, on mutual social and economic interests, and on the local governmental structure of the county.
- (d) The conformity of both the proposal and its anticipated effects with both the adopted commission policies on providing planned, orderly, efficient patterns of urban development, and the policies and priorities in Section 56377.
- (e) The effect of the proposal on maintaining the physical and economic integrity of agricultural lands, as defined by Section 56016.
- (f) The definiteness and certainty of the boundaries of the territory, the nonconformance of proposed boundaries with lines of assessment or ownership, the creation of islands or corridors of unincorporated territory, and other similar matters affecting the proposed boundaries.
- (g) A regional transportation plan adopted pursuant to Section 65080.
- (h) The proposal's consistency with city or county general and specific plans.
- (i) The sphere of influence of any local agency which may be applicable to the proposal being reviewed.
- (j) The comments of any affected local agency or other public agency.

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**ATTORNEYS AT LAW**

- (k) The ability of the newly formed or receiving entity to provide the services which are the subject of the application to the area, including the sufficiency of revenues for those services following the proposed boundary change.
- (l) Timely availability of water supplies adequate for projected needs as specified in Section 65352.5.
- (m) The extent to which the proposal will affect a city or cities and the county in achieving their respective fair shares of the regional housing needs as determined by the appropriate council of governments consistent with Article 10.6 (commencing with Section 65580) of Chapter 3 of Division 1 of Title 7.
- (n) Any information or comments from the landowner or owners, voters, or residents of the affected territory.
- (o) Any information relating to existing land use designations.
- (p) The extent to which the proposal will promote environmental justice. As used in this subdivision, "environmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the location of public facilities and the provision of public services.

**Section 56668.3.**

- (a) If the proposed change of organization or reorganization includes a city detachment or district annexation, except a special reorganization, and the proceeding has not been terminated based upon receipt of a resolution requesting termination pursuant to either Section 56751 or Section 56857, factors to be considered by the commission shall include all of the following:
  - (1) In the case of district annexation, whether the proposed annexation will be for the interest of landowners or present or future inhabitants within the district and within the territory proposed to be annexed to the district.
  - (2) In the case of a city detachment, whether the proposed detachment will be for the interest of the landowners or present or future inhabitants within the city and within the territory proposed to be detached from the city
  - (3) Any factors which may be considered by the commission as provided in Section 56668.
  - (4) Any resolution raising objections to the action that may be filed by an affected agency.
  - (5) Any other matters which the commission deems material.
- (b) The commission shall give great weight to any resolution raising objections to the action that is filed by a city or a district. The commission's consideration shall be based only on financial or service related concerns expressed in the protest.

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Except for findings regarding the value of written protests, the commission is not required to make any express findings concerning any of the factors considered by the commission.

**Section 56668.5.**

The commission may, but is not required to, consider the regional growth goals and policies established by a collaboration of elected officials only, formally representing their local jurisdictions in an official capacity on a regional or subregional basis. This section does not grant any new powers or authority to the commission or any other body to establish regional growth goals and policies independent of the powers granted by other laws.

**APPENDIX "B"**  
**CONTENTS OF A PROPOSAL APPLICATION**

Each application must include the following information:

- a. A petition or resolution of application initiating the proposal;
- b. A statement of the nature of each proposal;
- c. A map and description acceptable to the executive officer of the boundaries of the subject territory for each proposed change of organization or reorganization;
- d. Any data and information as may be required by any regulation of the commission;
- e. Any additional data and information as may be required by the executive officer pertaining to any of the matters or factors which may be considered by the commission;
- f. The names of the officers or persons, not to exceed three in number, who are to be furnished with copies of the report by the executive officer and who are to be given mailed notice of the hearing.

(§ 56652.)

**APPENDIX "C"**

**CONTENTS OF A RESOLUTION OR PETITION OF APPLICATION**

A resolution of application must include the following:

- a. State the proposal is made [pursuant to Part 3 of Division 3 of the Act [(§ 56650 et seq.)];
- b. State the nature of the proposal and list all proposed changes of organization;
- c. Set forth a description of the boundaries of the affected territory accompanied by a map showing the boundaries;
- d. Set forth any proposed terms and conditions;
- e. State the reason or reasons for the proposal;
- f. State whether the petition is signed by registered voters or owners of land.
- g. Designate not to exceed three persons as chief petitioners, setting forth their names and mailing addresses.
- h. Request that the proceedings be taken for the proposal [pursuant to Part 3 of Division 3 of the Act (§ 56650 et seq.)]; and
- i. State whether the proposal is consistent with the sphere of influence of any affected city or affected district.

(§§ 56654 and 56700.)

**APPENDIX "D"**  
**PLAN FOR PROVIDING SERVICES**

Local agencies submitting a resolution of application for a change of organization must submit a plan for providing services which must include the following:

- b. . . .
1. An enumeration and description of the services to be extended to the affected territory;
  2. The level and range of those services;
  3. An indication of when those services can feasibly be extended to the affected territory;
  4. An indication of any improvement or upgrading of structures, roads, sewer or water facility, or other conditions the local agency would impose or require within the affected territory if the change of organization or reorganization is completed;
  5. Information with respect to how those services would be financed.

(§ 56653(b).)

**Appendix H**

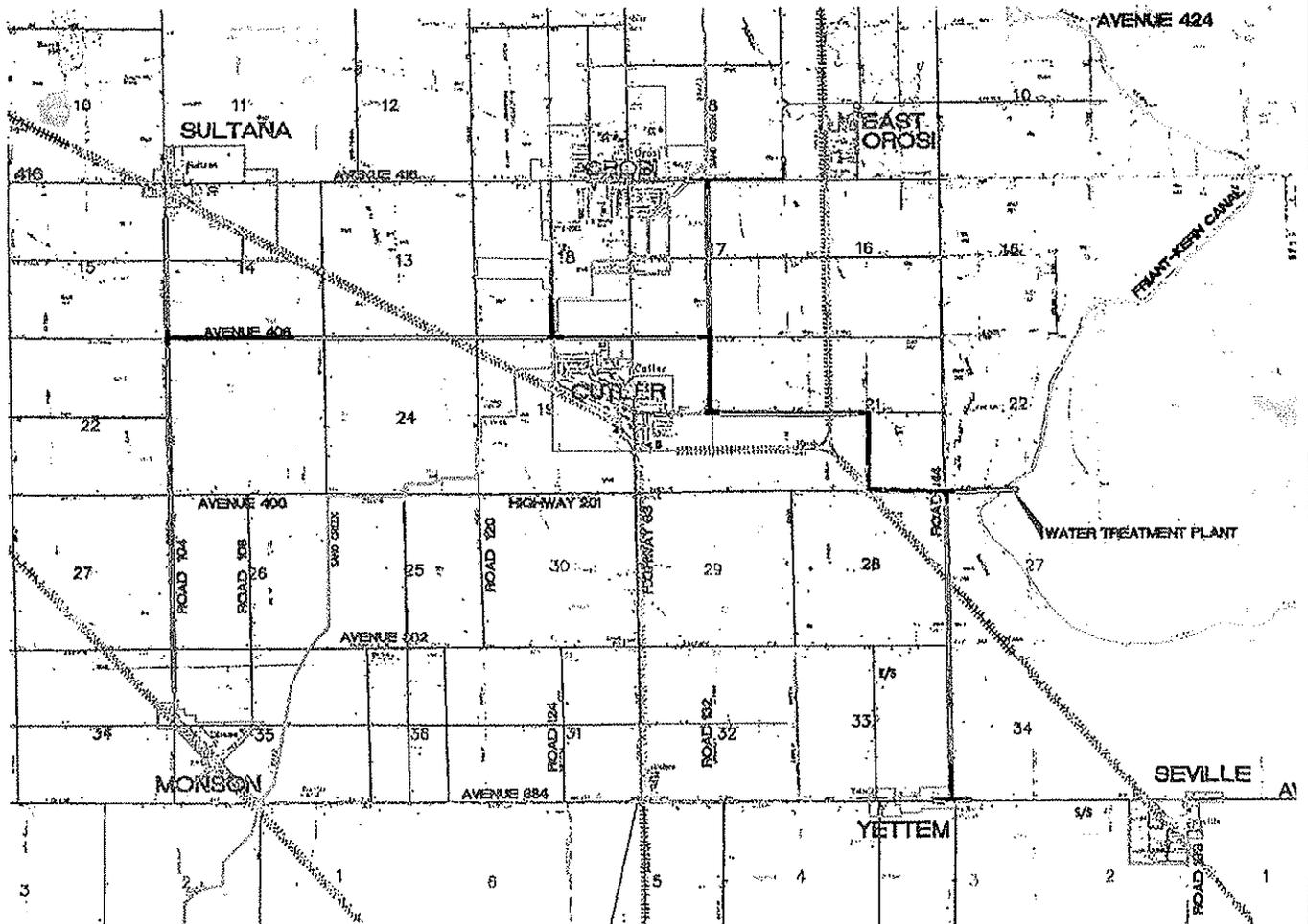
**Excerpts, North Tulare County Regional Surface Water  
Treatment Plant Study, 2014**

# NORTH TULARE COUNTY REGIONAL SURFACE WATER TREATMENT PLANT STUDY

## DRAFT REPORT

### OCTOBER, 2014

A PROJECT FINANCED BY FUNDS MADE AVAILABLE  
THROUGH THE CALIFORNIA SAFE DRINKING WATER  
STATE REVOLVING FUND



PREPARED BY:  
DENNIS R. KELLER / JAMES H. WEGLEY  
CONSULTING CIVIL ENGINEERS

## SECTION ONE

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### 1.2 Orosi Public Utility District

The Orosi Public Utility District (OPUD) annual water demand based on the total annual water production from each of the individual wells is shown in TABLE 1.2-1 ANNUAL WELL PRODUCTION. The monthly well production varies from a monthly low in February to a peak during the month of August. In reviewing the table, it is noted that the water use for OPUD has been declining since 2007. This reduction in water demand is due to both conservation efforts and economic conditions that have occurred during the time period represented by the table. It appears that the production may have reached a low in 2011 and has been increasing since 2012.

The total water use in 2012 for the OPUD was 361 million gallons (1,100 AF). Based on this total water consumption, the average daily water use is just under 1 million gallons per day (mgd). In determining their needs from the surface water treatment supply, the Board of Directors for the OPUD has decided to obtain their total water supply through a combination of treated water supplied by the North Tulare County Regional Surface Water Treatment Plant (NTRSWTP) and groundwater developed from their existing wells. The OPUD has shown an interest in utilizing one (1) mgd from the proposed NTRSWTP with the daily water demands above that amount being obtained through their existing wells. The monthly water production since 2007 is shown in TABLE 1.2-2, MONTHLY WATER WELL PRODUCTION.

The OPUD Average Daily Demand (ADD) over a 12 month period is shown on FIGURE 1.2-1, AVERAGE DAILY DEMAND. As shown on this figure, the full daily surface water treatment plant supply of 1 mgd will be utilized during the months of May through September. Based on the historical water usage in those months of peak demand, the Orosi Public Utility District

NORTH TULARE COUNTY  
REGIONAL SURFACE WATER TREATMENT PLANT STUDY

**SECTION ONE**

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TABLE 1.2-1  
ANNUAL WELL PRODUCTION  
MILLION GALLONS  
OROSI PUBLIC UTILITY DISTRICT  
NORTH TULARE COUNTY  
REGIONAL SURFACE WATER TREATMENT PLANT STUDY

Year	2012	2011	2010	2009	2008	2007
Well 4	216.345	202.73	198.626	202.028	210.11	211.392
Well 5	33.461	35.326	26.629	33.372	40.582	21.719
Well 7	44.761	46.324	60.39	66.443	76.996	93.402
Well 8	35.684	42.178	68.317	77.188	57.156	58.217
Well 10	30.452	21.052	-	-	-	-
<b>Annual Total</b>	<b>360.703</b>	<b>347.617</b>	<b>353.962</b>	<b>379.031</b>	<b>384.844</b>	<b>384.73</b>

NORTH TULARE COUNTY  
REGIONAL SURFACE WATER TREATMENT PLANT STUDY

**SECTION ONE**

---

TABLE 1.2-2  
MONTHLY WATER WELL PRODUCTION  
MILLION GALLONS  
OROSI PUBLIC UTILITY DISTRICT  
NORTH TULARE COUNTY  
REGIONAL SURFACE WATER TREATMENT PLANT STUDY

Year	2012	2011	2010	2009	2008	2007
January	21.507	20.002	20.252	21.198	20.187	19.195
February	19.278	18.33	18.641	18.126	19.165	27.207
March	23.426	20.944	22.526	24.478	26.733	25.186
April	23.374	25.076	23.45	30.712	31.95	29.103
May	36.152	33.441	32.017	38.205	37.654	39.335
June	40.853	35.914	41.406	39.305	42.082	44.652
July	45.129	43.573	46.586	43.647	47.117	48.032
August	44.511	42.865	43.718	44.72	45.755	44.854
September	37.394	37.29	36.739	38.727	38.002	36.588
October	28.963	27.355	27.209	28.467	31.797	29.472
November	21.985	20.905	21.668	24.155	22.883	62.536
December	18.944	21.923	19.701	21.733	21.519	21.524
<b>Annual Total</b>	<b>361.513</b>	<b>347.618</b>	<b>353.963</b>	<b>378.973</b>	<b>384.844</b>	<b>427.684</b>

## **Appendix I**

**Rate Study for East Oroshi, Excerpts from  
November 23, 2016 Northern Tulare County Evaluation of  
Governance Structures and Affordability, Prepared by  
Rural Community Assistance Corporation**



**Table 3: EOCS D Current Rate Structure and Revenue & Recommended Rate Adjustments**

EOCS D Rate Analysis						
	Projected FY 2016	FY2017	FY2018	FY2019	FY2020	FY2021
Annual Revenue Based on 106 Connections @ \$17.50	\$ 22,260	\$ 22,260	\$ 22,260	\$ 22,260	\$ 22,260	\$ 22,260
Annual Budgets (Assumes 3% Annual Inflation)	\$ (31,042)	\$ (31,973)	\$ (32,932)	\$ (33,920)	\$ (34,938)	\$ (35,986)
Annual Emergency Reserve Funding	\$ (1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
Annual CIP Reserve Funding	\$ (1,500)	\$ (1,500)	\$ (1,500)	\$ (1,500)	\$ (1,500)	\$ (1,500)
Variance	\$ (11,282)	\$ (12,213)	\$ (13,172)	\$ (14,160)	\$ (15,178)	\$ (16,226)
<b>Recommended Rate</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2020</b>
Annual Per Connection Annual Cost	\$ 316.43	\$ 325.22	\$ 334.27	\$ 343.59	\$ 353.19	\$ 363.08
<b>Per Connection Monthly Cost</b>	<b>\$ 26.37</b>	<b>\$ 27.15</b>	<b>\$ 27.95</b>	<b>\$ 28.75</b>	<b>\$ 29.55</b>	<b>\$ 30.37</b>
Current Per Connection Monthly Cost	\$ 17.50	\$ 17.50	\$ 27.15	\$ 27.95	\$ 28.75	\$ 29.55
<b>Recommended Monthly Per Connection Adjustment</b>		<b>\$ 9.65</b>	<b>\$ 0.80</b>	<b>\$ 0.80</b>	<b>\$ 0.80</b>	<b>\$ 0.82</b>
<b>Percentage of Increase</b>		<b>55%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>

**East Orosi CSD (EOCSD):**

EOCSD does not maintain accounting records. Financial statements are produced annually in the audit. The audited financial statement for FYE 6/30/2015 were not made available to RCAC. EOCSD's used the audited financial statements for FYE 6/30/2014, which indicated annual operating costs in the amount of \$29,261 net of depreciation and reserve account funding.

The utility had one long term bond payable with a balance of \$31,000. Cash in bank and with the County Treasury totaled \$92,000. The analysis we conducted is under the assumption that the recommended operating reserve amount of \$3,880 has been funded out of these cash balances.

An emergency reserve fund of \$10,000 funded over ten years or, \$1,000 annual was an assumed starting place for emergency reserves.

EOCSD's equipment schedule was not available for analysis. The annual depreciation on the water equipment in the audit was slightly less than \$1,500.

Even though this amount is not the correct one, \$1,500 was used as the annually funding for the CIP reserve account, bringing the total annual cost of service to \$33,542 versus the \$29,261 as of 6/30/2015.

A three percent annual inflation rate was assumed for subsequent years.

EOCSD has 106 connections-all residential, none of which are metered. The current rate is \$17.50 flat rate per month. Not even a dollar a day to get all the water you can get at home. The current rate is substantially short of covering the costs to provide the services. RCAC recommended an increase to \$27.15 per month beginning in July 1, 2016 followed by subsequent annual inflation increases of 3 percent.

To calculate a rate that would cover the costs of service, the costs were merely divided by the number of connections as illustrated in Table 3 below.

# East Oroshi Community Services District Financial Analysis Final Report



*Prepared by: Ryan Fleming*

Rural Community  
Assistance Corporation  
2020 Piedmont Drive, Suite 200  
West Sacramento, CA 95691

June, 2016

# EAST OROSI COMMUNITY SERVICES DISTRICT

## WATER SYSTEM #5401003

EAST OROSI, CA

## FINANCIAL ANALYSIS

June, 2016

*Prepared by:*



Mary Fleming, RDS

*Funded by:*

This document was prepared using funds under the multi-year Agreement 15-017-550 with the California State Water Resources Control Board; the total Agreement is for \$3,971,379 and will produce multiple documents and training

This material is based upon work supported under a grant by the Utilities Programs, United States Department of Agriculture, and produced as part of the RCAP Technitrain Project. Any opinions, findings, and conclusions or recommendations expressed in this material are solely the responsibility of the authors and do not necessarily represent the official views of the Rural Utilities Programs.

**TABLE OF CONTENTS**

Purpose and Objective.....3  
Financial Planning.....4  
    Operating Revenues .....4  
    Operating Expenses.....4  
    Water System Reserves .....4  
    Debt Service Reserve .....5  
    Operating Reserve .....5  
    Emergency Reserve.....5  
    Capital Improvement Reserve .....6  
    Affordability Index.....6  
Rate Basics .....7  
Fixed/Variable Costs.....9  
Customer Water Demands .....10  
Water Rate Analysis.....10  
Conclusion and Recommendations .....12

**TABLES**

TABLE 1: Actual and Projected Costs/Revenue .....8  
TABLE 2: Fixed/Variable Costs .....10  
TABLE 3: Current Rate Analysis .....11  
TABLE 4: Recommended Rate Adjustment.....11

**PURPOSE  
AND  
OBJECTIVE**

East Oroshi is a community and census-designated place (CDP) in Tulare County, California. The population was 495 at the 2010 census, up from 426 at the 2000 census. According to the United States Census Bureau, the CDP has a total area of 1.2 square miles, all of it land. In the California State Legislature East Oroshi is in the 14th Senate District and the 26th Assembly District. In the United States House of Representatives, East Oroshi is in California's 22nd congressional district.

The East Oroshi Community Services District (EOCSD) was formed in 1970 for the purpose of providing and maintaining water and sewer operations. It is governed by a four member board. For purposes of this analysis, only the water revenue and costs have been considered. EOCSD serves approximately 106 water connections.

In an effort to promote sustainability, EOCSD is researching options for uniting with other local water districts to form a cooperative to treat and deliver water to the combined communities. The governance and construction of said utility is yet to be determined. The proximity of the larger water systems that may be involved in the combined surface water treatment plant is as follows:

EOCSD is located 3.1 miles from Cutler Public Utility District, 2.2 miles from Oroshi Public Utility District and 4.4 miles from Sultana Community Services District.

To have a reliable comparison of what the costs to the community (rates) would be for the proposed cooperative utility to EOCSD's current rate structure, it was requested that Rural Community Assistance Corporation (RCAC) complete an evaluation of current water user rates for the EOCSD including Capital Improvement Planning (CIP) recommendations. The financial analysis was developed using historical financial records provided by EOCSD. It should be noted that the financial information provided for this analysis is from the 2014 audited financial statements. Current information was requested but EOCSD was unable to provide it.

An accurate and useful financial analysis not only identifies the total annual revenue required by a utility to conduct its normal day-to-day operations, but it also anticipates and plans for future operating and capital needs.

Furthermore, the analysis attempts to determine whether the projected revenue under existing rates will satisfy those needs. The primary objective of this process is to ensure that the utility has the ability to obtain sufficient funds to develop, construct, operate, maintain and manage its water system on a continuing basis, in full compliance with federal, state and local requirements.

***DISCLAIMER***

*The recommendations contained in this financial analysis are based on financial information provided to RCAC by EOCSD. Although every effort was made to assure the reliability of this information, no warranty is expressed or implied as to*

*the correctness, accuracy or completeness of the information contained herein.*

## **FINANCIAL PLANNING**

The objective of developing a financial plan for a water system is to determine cash needs, revenue requirements and anticipated timing of utility costs to ensure that adequate funds are available to meet operational and maintenance needs as they occur. Financial planning for a small water system normally includes an examination of:

- Operating revenues,
- Operation and maintenance (O&M) expenses,

- Debt service (principal and interest payments) on borrowed funds, and
- Reserve requirements.

The financial plan calculates the minimum revenues necessary to maintain viable and self-sustaining enterprises.

### **Operating Revenues**

Revenues are the main sources of income to a utility and are typically thought of as operating and non-operating. Operating revenue is the stable and reliable income that comes from customer rates or user charges. Non-operating revenue, such as interest on checking and reserve accounts, meter deposits, connection fees, late payments, penalties and reconnection fees, may also be considered operating revenue if they are stable and dependable revenue sources. For example, a water system with consistent growth that is expected to continue may consider connection fees as an operating revenue source.

### **Operating Expenses**

This is the first cost category that is considered when developing a financial plan. Operating and maintenance (O&M) costs include the day-to-day expenses of providing drinking water to customers. Operating expenses include labor, insurance, materials, electricity and chemicals.

### **Water System Reserves**

Reserves are an accepted way to stabilize and support a utility financial management. Small systems usually fund the operating expenses but don't often consider putting money aside for a specific upcoming financial need or project, or for an amount that can be used to provide rate stabilization in years when revenues are unusually low or expenditures are unusually high. The rationale for maintaining adequate reserve levels is two-fold. First, it helps to assure that the utility will have adequate funds available to meet its financial obligations in times of varying needs. Secondly, it provides a framework around which financial decisions can be made to determine when reserve balances are inadequate or excessive and what specific actions need to be taken to remedy the situation. The cash and cash equivalents were not designated as specific reserve accounts on the 2014 Statement of Financial Position, nor was it indicated to which activity (water or sewer) the cash balances were related. EOCSD had a total of \$12,145 in the operating bank balance and \$80,771 in the county treasury account as of June 30, 2014.

Utility reserve levels can be thought of as a savings account. Reserve balances are funds that are set aside for a specific cash flow requirement, financial need, project, task or legal covenant. Common reserve balances are established around the following four areas: **operating reserve, capital improvement, emergency and debt service reserve**. These balances are maintained in order to meet short-term cash flow requirements, and at the same time, minimize the risk associated

with meeting financial obligations and continued operational needs under adverse conditions.

***Debt Service Reserve***

Water utilities that have issued debt to pay for capital assets will often have required reserves that are specifically defined to meet the legal covenants of the debt. Normally, debt service reserve represents an amount equal to one full annual loan payment and can be accumulated to this level over a period of five to ten years. **EOCSD did not have debt related to the water system at the time of this analysis.** If debt is incurred for future replacements or upgrades of the water system, a debt reserve should be established and the cost of the reserve funding should be passed along to the rate payers through a rate adjustment.

***Operating Reserve***

Operating reserves are established to provide the utility with the ability to withstand short-term cash flow fluctuations. There can be a significant length of time between when a system provides a service and when a customer pays for that service. In addition, a system's cash flow can be affected by weather and seasonal demand patterns. A 45-day operating reserve is a frequently used industry norm. Because of potential delays in collecting payment, many utilities attempt to keep an amount of cash equal to at least 45 days or one-eighth (1/8) of their annual cash O&M expenses in an operating reserve to mitigate potential cash flow problems. A five-year budget projection was completed assuming a three percent annual inflation rate. **This analysis was completed on the assumption that operating reserves in the amount of \$3,881 are fully funded from the above referenced cash and cash equivalents.** If this reserve remains unused, an annual amount equal to the difference between 12.5 percent of the annual budget and the \$3,881 should be added to the account.

***Emergency Reserve***

In addition to operating reserves, emergency reserves are an important tool for financial sustainability. Emergency reserves are intended to help utilities deal with short-term emergencies which arise from time-to-time, such as main breaks or pump failures. The appropriate amount of emergency reserves will vary greatly with the size of the utility, and should depend on major infrastructure assets. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset; an asset whose failure will result in an immediate water outage or threat to public safety. **This analysis was completed on the assumption that emergency reserves in the amount of \$10,000 will be funded over ten years at \$1,000 year.**

***Capital Improvement Reserve***

A capital improvement reserve (also called a repair and replacement reserve) is intended to be used for replacing system assets that have become worn out or obsolete. Annual depreciation is frequently used to estimate the minimum level of funding for capital reserves. But it is important to understand that depreciation expense is an accounting concept for estimating the decline of an asset's useful life and does not represent the current replacement cost of that asset. As an example, a brand new system with a construction cost of \$1 million and a service life of 100 years should, in theory, be setting aside \$10,000 per year to fully capitalize the replacement cost of the infrastructure as it wears out. Many smaller systems find this to be impossible because of the effect on rates which explains the large number of small systems that are falling into disrepair.

To initiate a capital improvement plan (CIP), a small water or sewer system will start with a list of assets that includes the remaining service life, theoretical replacement costs in today's dollars and the remaining service life. It then calculates the monthly and annual reserve that must be collected from each customer to fully capitalize the replacement cost of each asset. In reality, the assets will fail and be replaced gradually, but the replacement cost of water system assets is often a shock to small systems who are struggling to keep rates reasonable.

One alternative method is to set-aside an annual amount equal to one-to-two percent of the total original cost asset value of the utility's property. Larger systems often have sufficient non-operating revenue to fund these reserve levels without affecting rates, but smaller systems often do not, leaving them to fund their CIP reserves from rates alone. An alternative method is to set-aside sufficient reserve funds to cover 100 percent of the cost for replacing short-lived assets, such as well pumps, electronic controls, vehicles, etc.

A schedule of EOCSD's equipment was not available for analysis. Because the audited financial statements indicated an annual depreciation expense of \$1,313 for the water system equipment, annual CIP reserve funding of \$1,500 was assumed for this calculation.

#### ***Affordability Index***

The affordability index measures the burden of costs passed from the water utility to the users against the median household income (MHI) for the area, and is used by funding agencies to determine grant and low interest loan eligibility. Many funding organizations look for an affordability ratio of 1.5 percent before approving grant money to low-income communities. The MHI for East Oroshi was not available.

***Affordability Index*** = average annual residential bill for water / annual MHI

**RATE** **Rate Structures**

**BASICS** The following are types of rates structures common to drinking water systems:

**Uniform Flat Rate:** Customers pay the same amount regardless of the quantity of water used. This type of rate is easiest to administer; however, it is not fair to the lowest water users and can promote high consumption which then may cost the utility more to provide that water. **Because the community does not have meters, this is the structure EOCSD uses. Each connection is charged \$17.50 per month.**

- **Single or Uniform Block Rate:** Customers are charged a constant price per volume regardless of the amount of water used. The cost per block of water is often added to a minimum charge for having service available. This rate tends to be more equitable to customers as the cost to customer is in direct proportion to the amount use.
- **Inclining or Increasing Block Rate:** This rate is designed to promote water use efficiency, as the price of water increases as the amount used increases.

**TABLE 1: EOCSD Actual Costs/Revenue FYE 6/30/2014 and Projected FYE 6/30/2015 and 6/30/2016**

East Orosi Community Services District			
Water Enterprise			
Statement of Activities FYE June 30, 2014 and Projections FYE June 30, 2015 and 2016			
	Actual 2014	Projected 2015	Projected 2016
<b>Operating Revenue:</b>			
Charges for Services	\$ 21,135	\$ 22,260	\$ 22,260
Rate Adjustment			
Other Operating Revenue	\$ 938		
<b>Total Operating Revenue</b>	<b>\$ 22,073</b>	<b>\$ 22,260</b>	<b>\$ 22,260</b>
<b>Operating Expenses:</b>			
Salaries and Wages	\$ 5,866	\$ 6,042	\$ 6,223
Employee Benefits	\$ 538	\$ 554	\$ 571
Utilities	\$ 10,579	\$ 10,896	\$ 11,223
Repairs and Maintenance	\$ 2,971	\$ 3,060	\$ 3,152
Legal/Professional	\$ 3,353	\$ 3,454	\$ 3,557
Testing	\$ 3,332	\$ 3,432	\$ 3,535
Office Supplies/Postage	\$ 773	\$ 796	\$ 820
Insurance	\$ 477	\$ 491	\$ 506
Director Fees	\$ 365	\$ 376	\$ 387
Communications	\$ 331	\$ 341	\$ 351
Miscellaneous	\$ 199	\$ 205	\$ 211
Dues/Subscriptions	\$ 372	\$ 383	\$ 395
Depreciation	\$ 1,313	\$ 1,313	
Licenses and Fees	\$ 105	\$ 108	\$ 111
<b>Total Operating Expenses</b>	<b>\$ 30,574</b>	<b>\$ 31,452</b>	<b>\$ 31,043</b>
<b>Plus Reserve Funding:</b>			
Operating Reserves			
Debt Reserves			
Emergency Reserves			
CIP Reserves			
<b>Total Reserve Funding</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Net Operating Expenses and Reserve Funding</b>	<b>\$ 30,574</b>	<b>\$ 31,452</b>	<b>\$ 31,043</b>
<b>Net Operating Income/(Loss) After Reserve Funding</b>	<b>\$ (8,501)</b>	<b>\$ (9,192)</b>	<b>\$ (8,783)</b>
<b>NonOperating Revenue/(Expense)</b>			
Interest Revenue	\$ 408	\$ 408	\$ 408
Property Taxes	\$ 196	\$ 196	\$ 196
Interest Expense			
<b>Net Non-Operating Revenue</b>	<b>\$ 604</b>	<b>\$ 604</b>	<b>\$ 604</b>
<b>Change in Net Position</b>	<b>\$ (7,897)</b>	<b>\$ (8,588)</b>	<b>\$ (8,179)</b>
Net Position, Beginning of Year	\$ 39,801	\$ 31,904	\$ 23,316
Net Position, End of Year	\$ 31,904	\$ 23,316	\$ 15,137

### **Fixed versus Variable Expenses**

Water must be available to customers at all times whether the customer is using the water or not. A large share of water system costs are associated with bringing the first drop of water to the customer's meter, regardless of whether any water is used. Fixed costs are those that must be recovered by EOCSD to ensure that drinking water is available to its customers.

**Fixed costs** are usually recovered from each customer on an equal basis through the use of a minimum fee (a minimum monthly bill). Fixed costs may cover 100 percent of some expenses in a system's budget, but only a portion of other types of expenses. For example, fixed expenses generally include all debt service expenses on construction loans, financial reserves for emergencies or equipment replacement, and overhead costs, like insurance and bonding. Fixed costs should also include a portion of other system operating expenses. For example, a percentage of wages and fringe benefits for time spent in reading each meter and preparing each customer's bill.

The method for identifying all or part of some expenses as fixed costs involves determining to what extent each of the line item expenses in the budget benefits every customer of the system, regardless of their level of usage. This is a determination that each utility must make for itself.

Fixed costs should generally be recovered in a system's minimum bill, the minimum monthly fee charged equally to each customer within each customer classification (residential, multi-residential, commercial, etc.) or by meter size (3/4-inch, 1-inch, etc.). For small systems with fewer customers, spreading these costs among its customers, the proportion of fixed costs will be higher than larger systems. Many small systems find it impossible to recover all fixed costs in a monthly minimum, so they tend to shift a certain percentage to the variable side. Fixed costs for small systems are usually in the range of one-third to two-thirds of the system's total operating costs and may run even higher for very small systems.

**Variable costs** are system expenses that are more directly related to how much water is pumped, treated, stored and distributed. Most costs for electricity, operator wages and benefits, chemicals and repairs can be classified as variable costs because they are directly related to the amount of water customers' use. To recover variable expenses, rate structures use a "consumption charge" or "flow charge" per volume, such as per thousand gallons or hundred cubic feet. Because only a few customers are metered, the variable and fixed costs must fully recovered through the base rates.

The 2016 EOCSD projected water department costs were used to develop a breakdown of fixed and variable operating costs, as presented in TABLE 2. Because EOCSD serves only 106 connections, the fixed costs are substantially higher than what might be expected for larger utilities.



# SUPPLEMENTAL PRELIMINARY ENGINEERING REPORT

## WATER SUPPLY AND INFRASTRUCTURE

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May 2023

## Table of Contents

<b>SECTION 1 - Introduction</b> .....	<b>1</b>
1.1 - Background.....	1
1.2 - Study Area .....	1
1.3 - Key Agencies/Organizations .....	6
1.4 - Funding.....	6
1.5 - Schedule .....	6
<b>SECTION 2 - Potential Project Participants</b> .....	<b>10</b>
2.1 - Agencies.....	10
2.1.1 - The State Water Resources Control Board, Division of Drinking Water (SWRCB, DDW).....	10
2.1.2 - The East Orosi Community Services District (EOCSD).....	10
2.1.3 - Orosi Public Utility District (OPUD) .....	11
2.1.4 - Tulare County Local Agency Formation Commission (LAFCO).....	11
2.1.5 - Cutler-Orosi Joint Unified School District.....	12
<b>SECTION 3 - The Project</b> .....	<b>13</b>
3.1 - Project Purpose.....	13
3.2 - Issues .....	13
3.3 - The Project .....	14
3.3.1 - East Orosi CSD Demands .....	16
3.3.2 - The Well .....	17
3.3.3 - Connections to OPUD .....	17
3.3.4 - Water Storage Facilities .....	18
3.3.5 - Assumptions and Tank Design Criteria.....	18
3.3.6 - Assumptions and Booster Pumps Design Criteria.....	18
3.3.7 - EOCSD Distribution System.....	20
3.3.8 - Metering.....	20
3.3.9 - Lateral Connections .....	20
3.4 - Project Criteria .....	21
3.5 - Comprehensive Response to Climate Change.....	21
3.5.1 - Vulnerability .....	21
3.5.2 - Adaptation.....	21
3.5.3 - Mitigation .....	22
3.6 - Facilities Costs .....	22

**List of Figures**

Figure 1 Project Location..... 2  
Figure 2 Existing East Oroshi Water System..... 3  
Figure 3 East Oroshi – Ave 417 and Rd 137 ..... 4  
Figure 4 Study Area ..... 5  
Figure 5 East Oroshi Community Services District ..... 7  
Figure 6 Aerial View, East Oroshi..... 8  
Figure 7 Oroshi Public Utility District..... 9  
Figure 8 The Project Sites ..... 15  
Figure 9 Storage Tank Location ..... 19

**Appendices**

Appendix A – Geohydrologist Report, East Oroshi Community Services District Test Well,  
Avenue 408, Tulare County

## **SECTION 1 - INTRODUCTION**

### **1.1 - Background**

The community of East Orosi is located in the northeast corner of the San Joaquin Valley portion of Tulare County (Figure 1). The East Orosi Community Services District (EOCSD) serves drinking water, among other services, to the East Orosi community. The drinking water distribution system is shown in Figure 2. A typical street in East Orosi is shown in Figure 3. The 2020 census listed 423 residents in 109 housing units, with 29 percent of the households with median incomes below the federal poverty line. There has been little change in the community since the census. The 2020 U.S. Census Bureau American Community Survey 5-Year Estimate states that the community's annual median household income was \$33,472, 42.5 percent of the statewide median household income, thereby qualifying East Orosi as a Severely Disadvantaged Community.

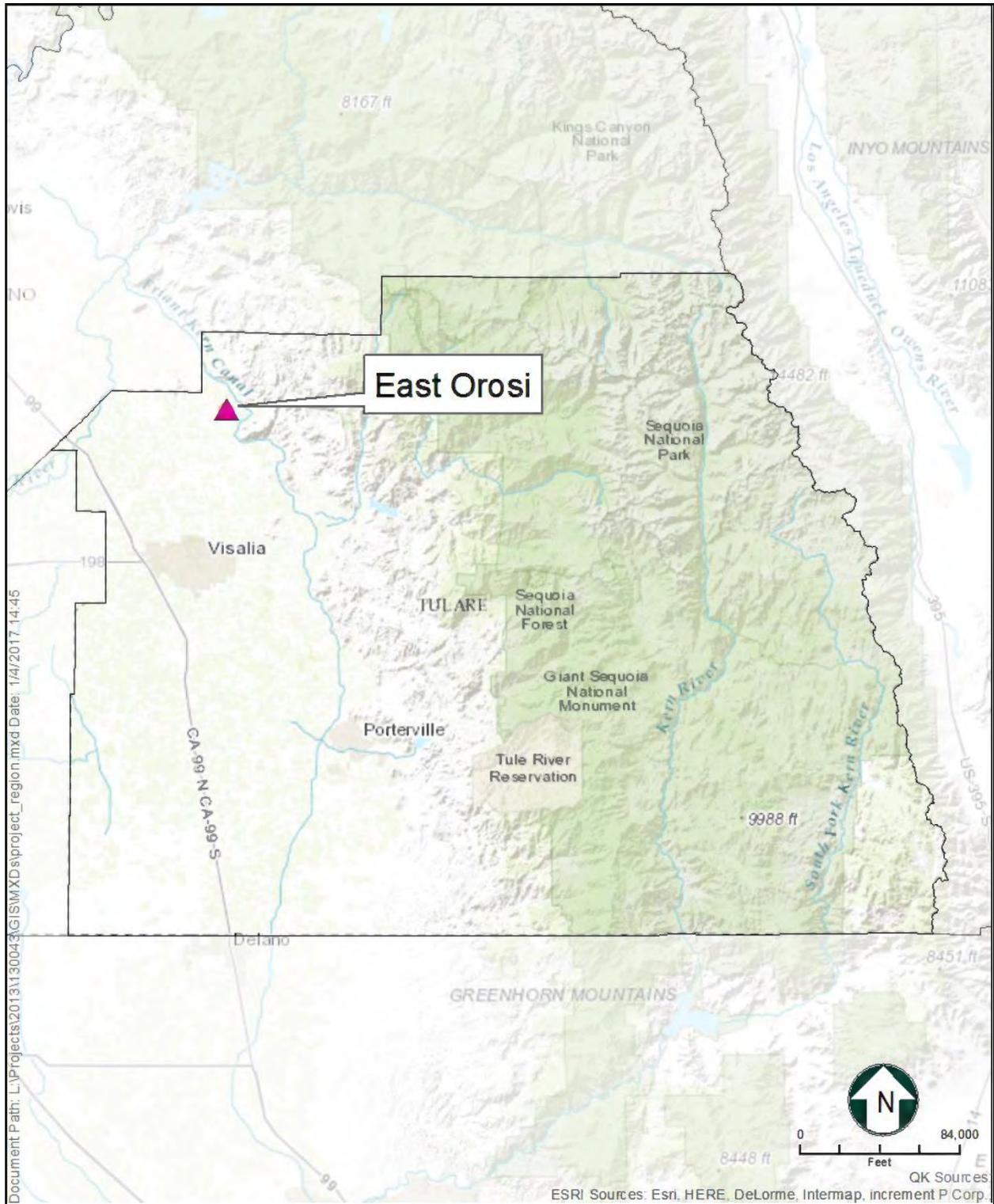
As of November 1, 2022, Tulare County Resources Management Agency (County) was appointed as the East Orosi full-scope administrator. As the administrator, the County has full authority and control over the water system infrastructure. Tulare County is also responsible for street maintenance and storm drainage. Wastewater treatment consists of septic systems on the individual properties that pump into a wastewater collection system that the District contracts with the Cutler-Orosi Joint Powers Wastewater Authority for treatment. Orosi is located approximately one mile west of East Orosi.

As of December 2012, East Orosi was served by two District wells. These wells provide drinking water with non-compliant (nitrate) water. In November 2016, the State Water Resources Control Board Division of Drinking Water (SWRCB, DDW) issued a Compliance Order requiring the District to bring the District's water system into compliance with the nitrate MCL of less than 45 ppm (as nitrate) by December 1, 2018. As of January 2023, the District's water system remains under the Compliance Order.

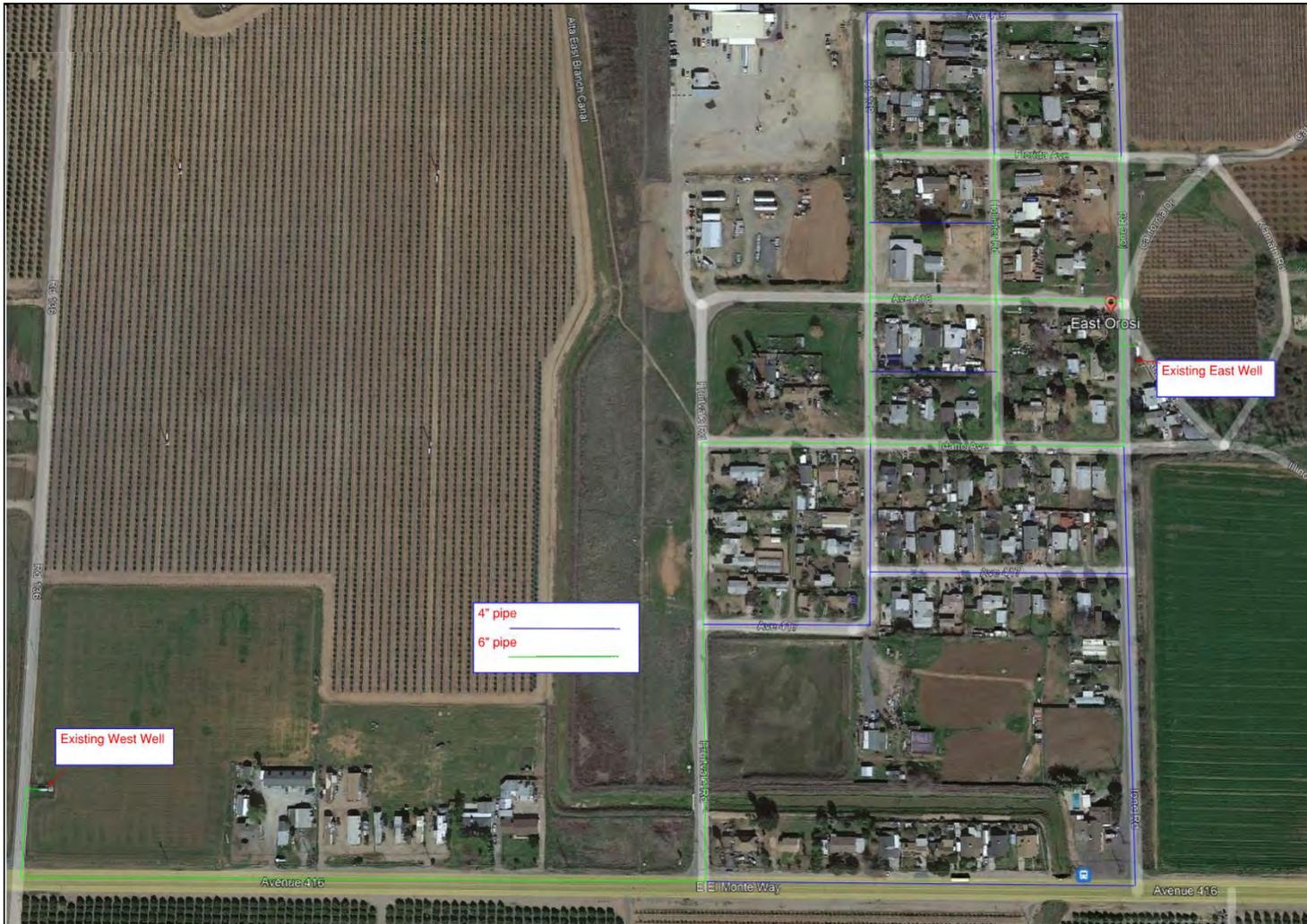
### **1.2 - Study Area**

Figure 4 shows the Study Area. It includes the East Orosi Community Services District, the Orosi Public Utilities District, and the rural Tulare County area surrounding the two Districts.

The proposed supply well is located approximately two miles southwest of East Orosi. After an exhaustive study, the selection of this wellsite was determined as one from which an adequate and quality-compliant drinking water supply for East Orosi could be assured. A test well that has been completed on the site confirmed the likelihood that a production well thereon could provide a compliant water supply in an amount sufficient to meet the needs of East Orosi, Cutler-Orosi Joint Unified School District and, if desired, to provide a supplemental water source for Orosi and Cutler.



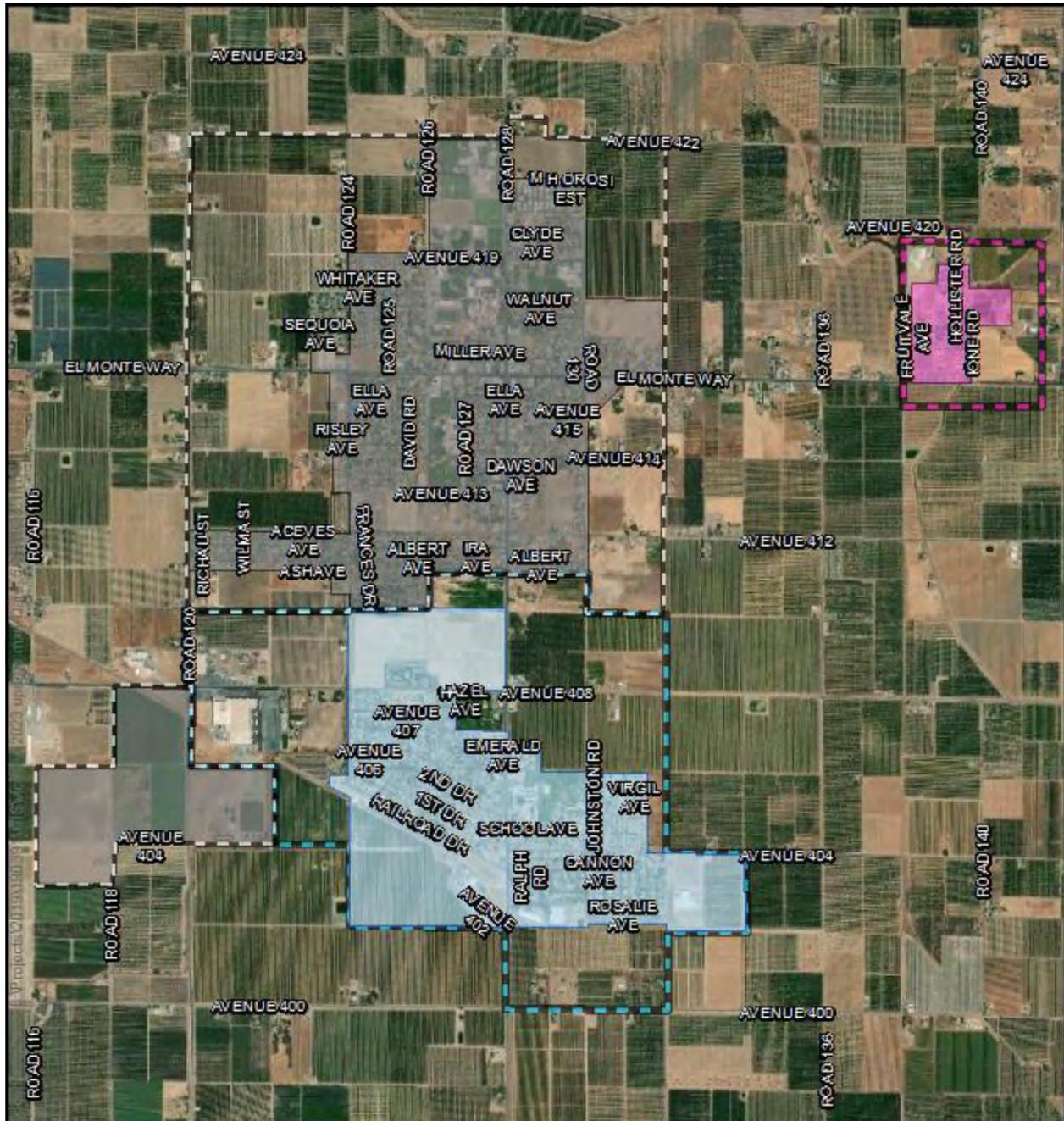
**Figure 1**  
**Project Location**

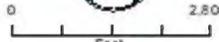


**Figure 2**  
Existing East Orosi Water System



**Figure 3**  
**East Orosi – Ave 417 and Rd 137**



<b>East Orsi CSD</b>	<b>Orsi PUD</b>	<b>Cutler PUD</b>	  <small>ESRI Source: Esri, Maxar, GeoEye, Earthstar Geographics</small>
 District	 District	 District	
 Sphere of Influence	 Sphere of Influence	 Sphere of Influence	



**Figure 4**  
**Study Area**

### **1.3 - Key Agencies/Organizations**

These agencies include:

- The project applicant, the East Orosi Community Services District (EOCSD). The District boundaries and the community are shown in Figures 5 and 6.
- Tulare County Resource Management Agency (RMA) as the appointed administrator for the East Orosi CSD water system.
- Cutler-Orosi Joint Unified School District on behalf of the Family Education Center water system (public water system #5403126)
- The Orosi Public Utility District (OPUD) with an estimated population of 10,000. The District boundaries are shown in Figure 7.
- The State Water Resources Control Board - Division of Drinking Water (SWRCB, DDW), a regulatory agency.
- The State Water Resources Control Board - Division of Financial Assistance (SWRCB, DFA), a funding agency. The Tulare County Local Agency Formation Commission (LAFCO) which coordinates and regulates the establishment, annexation to, and consolidation of public agencies in the County.

The District is being assisted for this project by Self-Help Enterprises (SHE), a San Joaquin Valley/Visalia-based private non-profit affordable housing and community development corporation that aids local limited-income agencies in securing funding for essential infrastructure facilities.

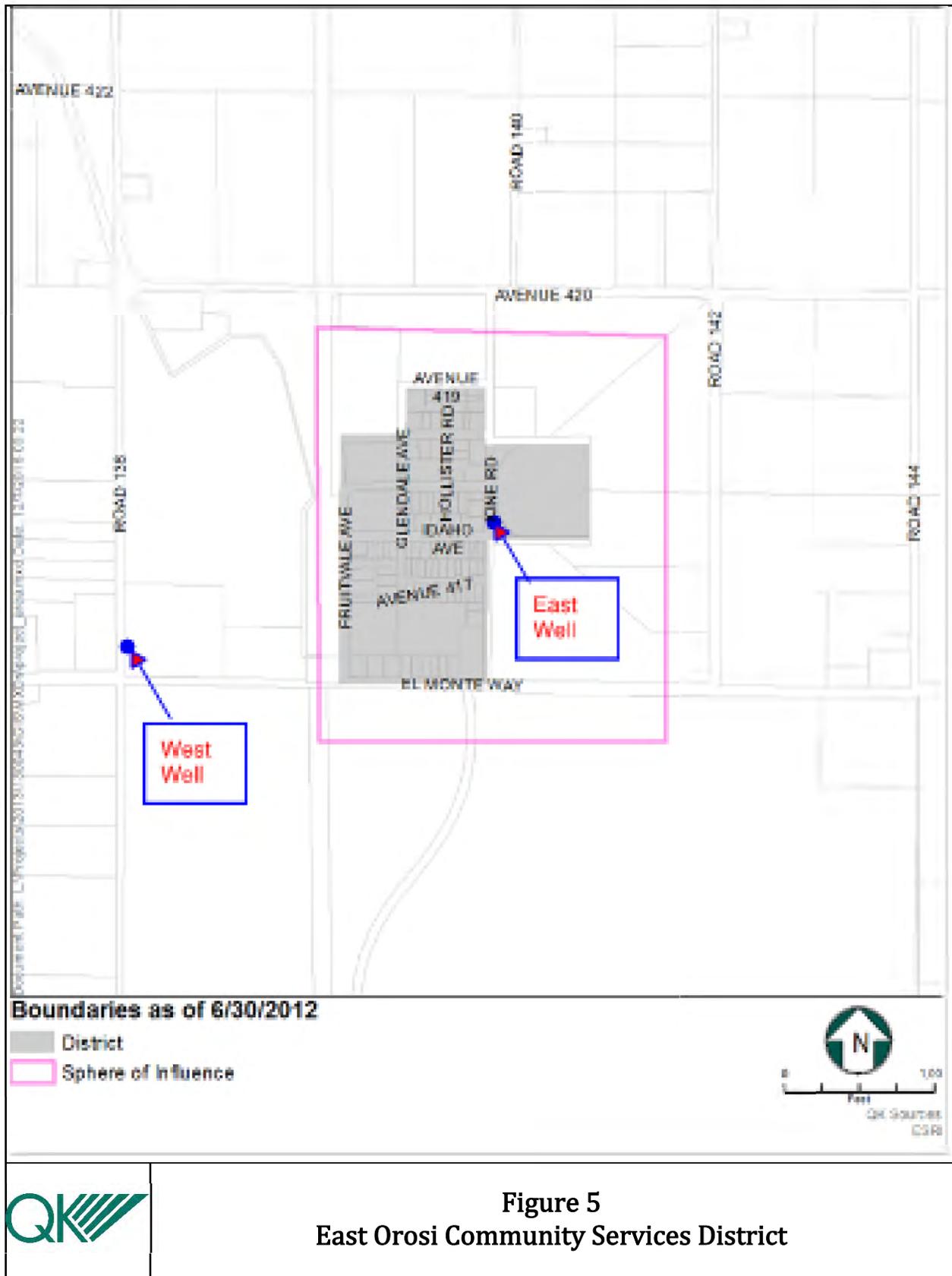
### **1.4 - Funding**

The EOCSD has no financial resources or feasible tax or service fee-based funding ability to improve or replace its water supply and distribution system.

The County, the administrator of the EOCSD's drinking water system, is expected to submit a funding application to the SWRCB, DFA for necessary drinking water infrastructure.

### **1.5 - Schedule**

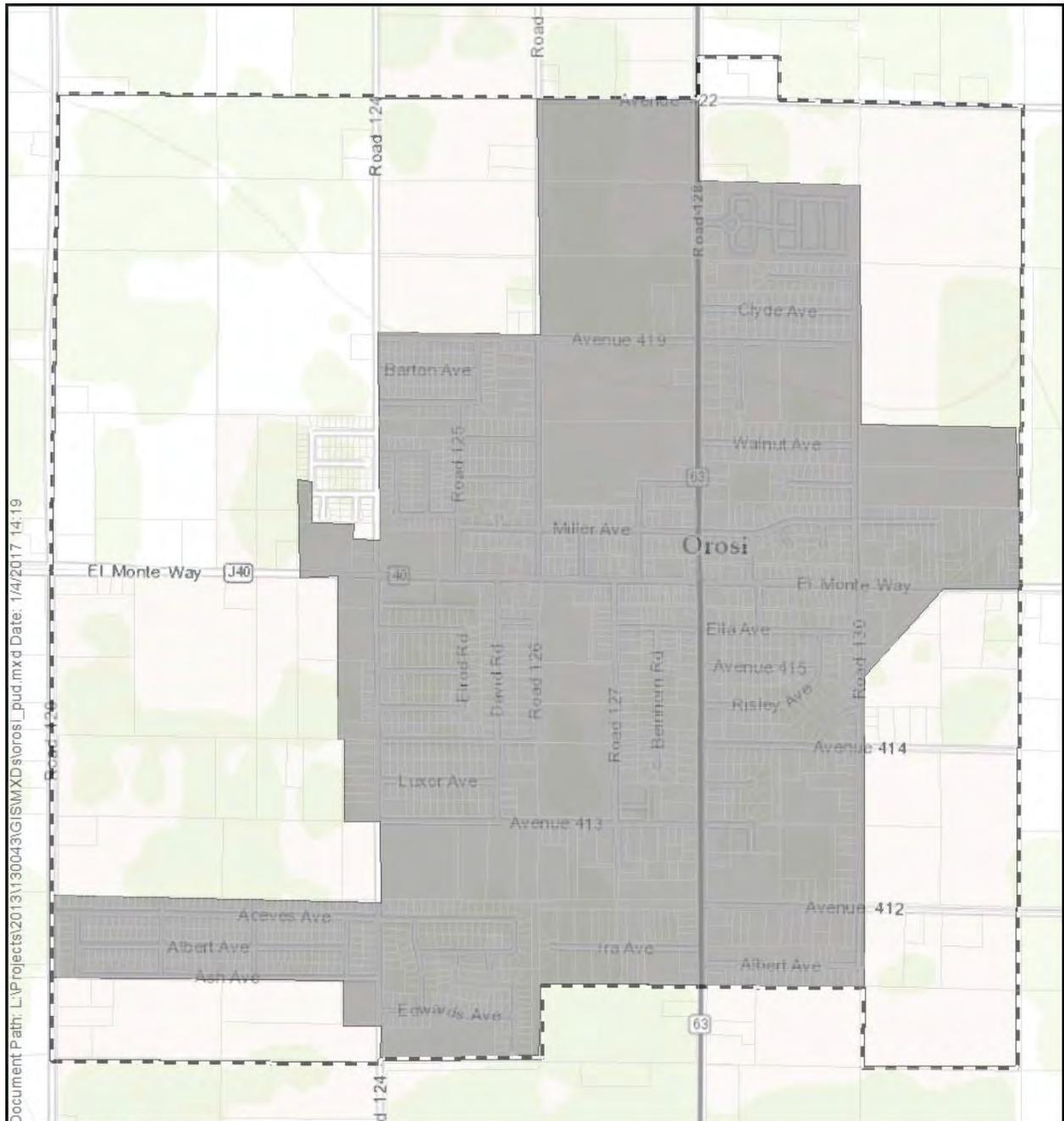
Once the bid is awarded, the estimated construction time for the project will be 12 months.



**Figure 5**  
**East Orosi Community Services District**

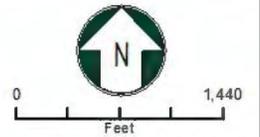


Figure 6  
Aerial View, East Orosi



**Boundaries as of 6/30/2012**

- District
- SOI



ESRI Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., QK Sources:



**Figure 7**  
**Orosi Public Utility District**

## **SECTION 2 - POTENTIAL PROJECT PARTICIPANTS**

### **2.1 - Agencies**

Self-Help Enterprises has assisted the East Orosi Community Services District (EOCSD) and the County, system administrator, with project funding and project management.

The critical participants in the project are listed below:

#### **2.1.1 - THE STATE WATER RESOURCES CONTROL BOARD, DIVISION OF DRINKING WATER (SWRCB, DDW)**

The Division ensures public water systems comply with primary and secondary drinking water standards. It is additionally responsible for the evaluation and implementation of State funding for public water system facilities, enabling entities operating such facilities to comply with such standards.

A Compliance Order was issued on November 9, 2015, from SWRCB to the EOCSD requiring compliance by December 1, 2018, with State Maximum Contaminant Levels (MCLs) for drinking water nitrates in the District's water system.

#### **2.1.2 - THE EAST OROSI COMMUNITY SERVICES DISTRICT (EOCSD)**

As of November 1, 2022, the County operates and maintains the drinking water system facilities serving the community of East Orosi.

Information regarding the community and the water system is contained in Section 1.1 of this report.

Other information regarding the District and its water system is listed below:

- The estimates of the population served by the water system range from 386 to 700 people (see Section 1.1). The population used as a basis for this report is 560 residents, based on metered total water usage.
- Prior to the County becoming full administrator of the drinking water system, operations and maintenance are provided by a private contractor.
- Current water rates are \$17.15 per month per system-connected service. There are old, manual-read meters installed on a mix of ¾-inch and 1-inch poly-pipe house connections. They are not read or routinely calibrated and, as such, are not considered accurate, so they are not used as a basis for billings.
- The District has no in-community water storage facilities.
- It has approximately 8,900 feet of 4-inch and 6-inch PVC pipe, 101 service connections of poly-pipe with meters and meter boxes, and 11 fire hydrants (four of which are not in full compliance with the current California Fire Code location requirements).

- The District consists of two groundwater wells, Well 01 and Well 02. Currently, it is estimated that Well 01 produces approximately 160 gallons per minute (gpm), and Well 02 produces 150 gpm. Each wellsite is equipped with a hydropneumatic tank and hypochlorination facilities.
- In the audited year 2015, water system expenditures were \$54,000.
- The District office is a small travel trailer located in East Oroshi near Florida Avenue and Ione Road.
- Besides the previously mentioned nitrate issues, there are no other currently reported water quality problems.
- Maximum Day Demand (MDD) is 243 gpm, and Peak Hourly Demand (PHD) is 364.5 gpm.

### **2.1.3 - OROSI PUBLIC UTILITY DISTRICT (OPUD)**

The current population of the 690-acre District is in the order of 8,300 people based on the 2020 census. OPUD has approximately 1,570 service connections.

The drinking water system consists of the following infrastructure:

- Well 04 – produces 400 gpm
- Well 5A – produces 525 gpm
- Well 08 – produces 650 gpm
- Well10 – produces 650 gpm
- Well 7 (standby) – produces 650 gpm
- One 750,000 gallons steel storage tank
- A 6–12 inch diameter cast iron, asbestos cement, PVC, and ductile iron distribution system

	MDD (gpm)	PHD (gpm)	Source Capacity (gpm)	Standby	Storage
OPUD	1,516	2,275	2,225	650	750,000

Orosi PUD appears to be able to meet its own MDD and PHD.

### **2.1.4 - TULARE COUNTY LOCAL AGENCY FORMATION COMMISSION (LAFCO)**

In order for OPUD to provide drinking water services to the customers of EOCSD, either annexation of EOCSD to OPUD or consolidation of Districts will be necessary for this project. The Tulare County LAFCO regulates the boundary changes, and the process may be initiated by the District(s).

The Commission is governed by five representatives, two appointed by the Board of Supervisors, two by a committee of City representatives, and one by the four County/City appointees.

### ***2.1.5 -CUTLER-OROSI JOINT UNIFIED SCHOOL DISTRICT***

The proposed new wellsite for this project is located on a property owned by the Cutler-Orosi Joint Unified School District. It is located on the north side of Avenue 408 and is of State regulation-compliant size, 108 feet by 122 feet. Adjacent to the proposed wellsite, the School District has offices that are served by the Family Education Center water system (PWS#5403126). It has been previously discussed and understood that part of the (well) property sale agreement includes the condition that the Family Education Center is served by this new well (i.e., consolidated). The Family Education Center is a non-transient, non-community water system that serves approximately 50 persons per year with its single groundwater well.

## **SECTION 3 - THE PROJECT**

### **3.1 - Project Purpose**

In a reiteration of the project's purpose, as stated in Section 1, this report identifies and evaluates the relative feasibility and costs of alternative solutions to East Orosi's water supply needs and enables the implementation of the best solution.

The community has for some years suffered from service by a water supply system that has not been in compliance with health-related State drinking water standards and from less-than-adequate financial and staffing resources to operate and maintain its water system properly. The fulfillment of the project's purpose will resolve these concerns.

### **3.2 - Issues**

- Financial

The adequacy and continued availability of federal and State funding is essential to the implementation of the project's purpose. Local financing is impossible; the District's residents cannot fund the needed facilities. There is no possibility of funding by the County of Tulare or private funding. The funding of Tulare RMA to operate as the system administrator for the East Orosi water system is being funded by the State.

Tulare County, as the administrator of the EOCSD's drinking water system, will work with OPUD and others to conduct a study and establish water rates for the EOCSD customers that are equitable to that rate of the OPUD customers.

- Governmental

The participation, at some alternative level, of the OPUD (because of adjacency and financial and operational capability) in the implementation of adequate EOCSD water supply facilities would be of value. Absent such participation, pipeline connection costs to the new well would be increased, storage facilities in East Orosi would be required, and there would be no "backup" drinking water-compliant water supply.

- Operation and Maintenance

Equally important, it will be financially difficult for East Orosi to operate and maintain upgraded project facilities. They must be operated and maintained by trained and licensed personnel to read meters, bill for services, operate and repair facilities, maintain financial stability, and test for and submit records of system compliance.

Tulare County RMA, in its capacity as the system administrator, has entered contracts with appropriate vendors to provide monthly maintenance and operation. In the future, the expense of such contractual services would probably be greater than the equitable

expense-sharing cost of incremental services by OPUD. With a services scenario, Orosi could benefit from the backup available from a high-volume project well and an Orosi-system connector; a lower-cost, low-volume well would be sufficient for East Orosi's needs.

EOCSD is too small and possesses limited financial resources to provide a reliable and safe water supply to its citizens, absent long-term financial assistance or, most feasibly, a contractual or consolidation relationship with OPUD.

- **Timing**

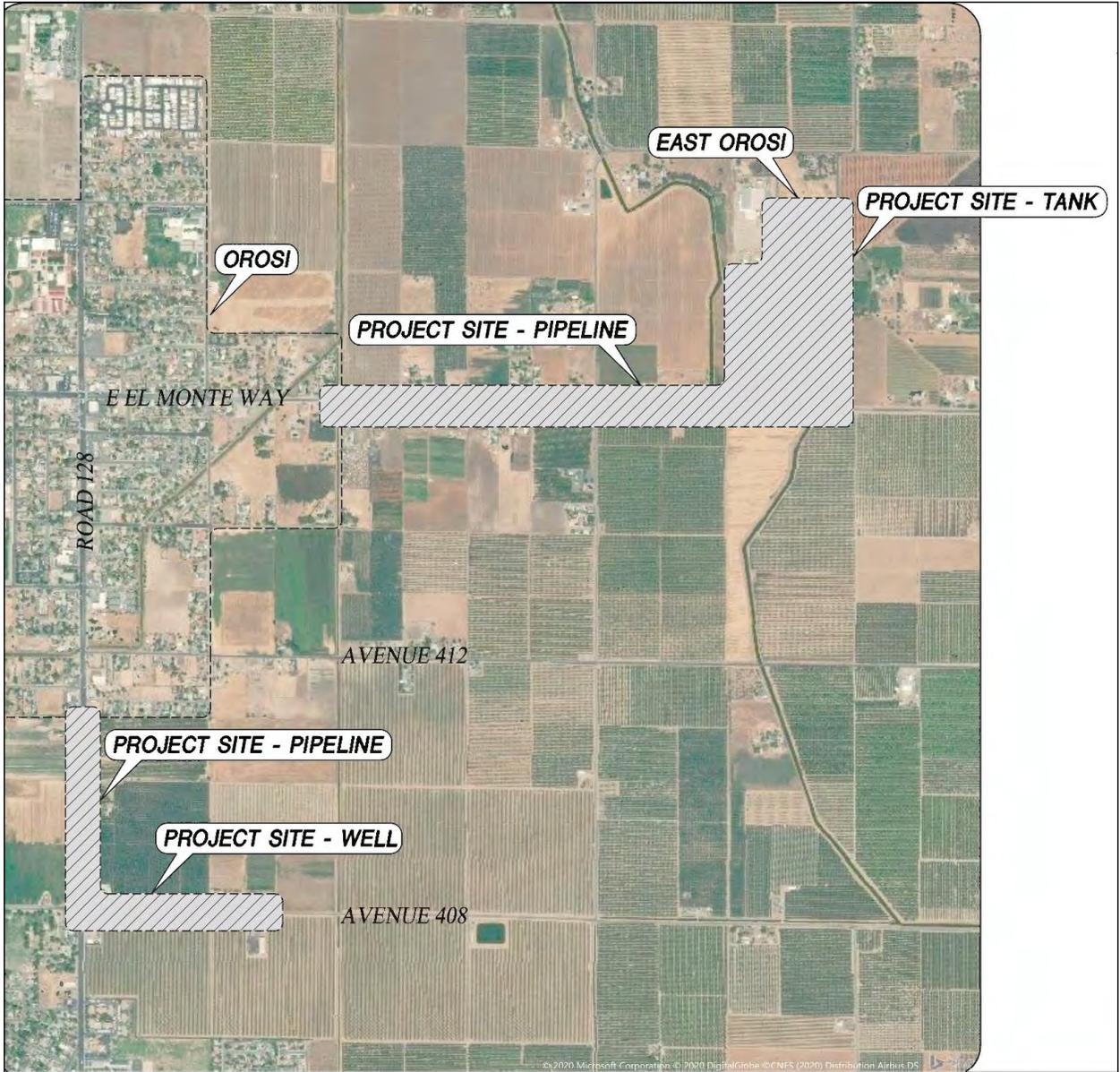
East Orosi, at this juncture, remains served by two wells, which produce non-compliant (nitrates) water. It has no storage facilities. Residents are being provided bottled water. It is evident that accelerating project completion is a critical issue. Drought-related delays in well construction, prolonged State/Orosi negotiations, or other delays would be a public health concern.

Excessive project delays, funding shortages, or modifications with a changed federal administration could also be a project timing issue, given the potential resulting additional claims upon State funding programs.

### **3.3 - The Project**

The project will consolidate the EOCSD drinking water customers and the Family Education Center into the OPUD drinking water system. To achieve this, the project consists of six components (Figure 8):

1. A well that will supply drinking water-compliant water.
2. A piping connection from that well to the south end of Orosi and from the northeast end of Orosi to East Orosi.
3. Water storage facilities.
4. Replacement of the entire East Orosi distribution system.
5. The installation of remote-read meters on each service connection.
6. Laterals from the water meter to the residences in East Orosi and the Family Education Center.



**Figure 8**  
**The Project Sites**

### 3.3.1 - EAST OROSI CSD DEMANDS

A review of the EOCS D well meters records shows evidence that major portions of the records reflect meter error and cannot be used for the reliable design of well supply needs for this project.

Below are the estimated demands for EOCS D, Family Education Center, and OPUD, per sanitary survey reports and information provided to the Division of Drinking Water.

Individual Water System Demands and Estimated Consolidation Demand	Maximum Day Demand (MDD) (gpm)	Peak Hourly Demand (PHD)(gpm)	Source Capacity (gpm)	Source Capacity with highest producing source (gpm) offline	Standby Source (gpm)	Storage (gallon)
Family Education Center	29	43.5	NA	NA	NA	NA
EOCS D	243	364.5	NA	NA	NA	NA
OPUD	1,516	2,274	2,225	1,575	650	750,000
<b>Total Combined</b>	<b>1,788</b>	<b>2,682</b>	<b>2,225</b>	<b>1,575</b>	<b>650</b>	<b>750,000</b>

#### Estimated Consolidation Water Demands

MDD Required (gpm)	1,788
Available OPUD capacity minus highest producing source (gpm)	1,575
4 hrs of PHD Required (gallons)	643,680
Available 4 hrs PHD + Storage (gallons)	1,393,680

Currently, the Oro si PUD is unable to meet the combined MDD with their highest source capacity offline.

Fire flows, with the existing distribution system of 4-inch and 6-inch lines, cannot be obtained at normally required residential pressures and durations. Tulare County Fire will require that 1,000 gallons per minute with a one-hour duration would be minimally satisfactory. The existing fire hydrant system, supplied with 6-inch or multiple 4-inch hydrant supply lines, cannot meet this standard given adequate supply and pressures to the community distribution system. Tulare County Fire is aware of the current lack of water capacity and is taking precautions, as of November 2022, to address water supply issues in the interim.

Such adequate supply (1,000 gpm) and 20 psi pressure should be provided with maximum day demand (MDD) of 243 gpm for a total required flow of 1,243 gallons per minute.

Alternative well-to-community piping and in-community storage will be evaluated and cost-estimated on these demand estimates.

### **3.3.2 - THE WELL**

A hydrogeologist and engineers familiar with the East Orosi vicinity undertook a comprehensive review of alternative sites for the project well. Most of the area immediately adjacent to East Orosi was identified as underlain by aquifers with nitrate or DBCP contaminants. It was determined that the only area, albeit distant and limited in size, from which it was likely that drinking water-compliant water could be produced was in a narrow geographic band southwest of the community. The area is a tentatively selected and now test-well confirmed wellsite east of the northeast corner of the intersection of State Route 63 and Avenue 408 (Figure 8). The final acquisition of the wellsite remains to be finalized.

The wellsite is located on property owned by the Cutler-Orosi Joint Unified School District. It is located on the north side of Avenue 408 and is of State regulation-compliant size, 108 feet by 122 feet. Between the wellsite and State Highway 63, the School District has a well supply for its onsite offices, which supplies these facilities with compliant drinking water, including nitrate levels less than 45 ppm (as nitrate).

There are no other major wells adjacent to the wellsite. Approximately 700 to 1,300 feet east of the site, there is a cluster of eight rural homes fronting Avenue 408. These homes are currently supplied with water from individual wells.

In October 2016, a test well was completed on the selected site. A full panoply of State-required potential contaminant tests was run on the (550 foot) test well. The hydrogeologist has reported that a properly designed production well at the site could produce fully compliant drinking water at a maximum rate of 1,200 to 1,400 gallons per minute, significantly exceeding the supply needed by EOCSD. It is proposed that the well to be completed under this project be designed with a variable frequency drive (VFD)-controlled capacity range identified by the hydrogeologist after construction of the production well if desired and agreed by the OPUD. For the purposes of this report, it is assumed the production well will produce between 1,200 and 1,400 gallons per minute, enough to meet the maximum day demand and fire flow requirements for EOCSD.

It is proposed, as components of well design, chlorination facilities, a well discharge meter, VFD, site paving and fencing, plus an 8-inch tee to allow for a potential future easterly water line along the Road 130 alignment to serve the eight rural residences.

### **3.3.3 - CONNECTIONS TO OPUD**

Assuming the production well will produce 1,200 to 1,400 gpm, a 10-inch line would connect the wellsite to the OPUD water distribution system. The proposed connection to the OPUD water distribution system is at Albert Avenue and Highway 63. At this point, two existing 8-inch water lines connect at a tee (one line running east on Albert Avenue and one running

north along Highway 63). The impact of tying the proposed 10-inch line into the OPUD water system at this location has not been hydraulically modeled.

The proposed connection from OPUD to the EOCSD distribution system would be along Avenue 416, approximately 300 feet east of Sandy Creek. There is an existing 8-inch OPUD line at this location that dead ends there. It is proposed that this 8-inch line be extended along Avenue 416 to the EOCSD proposed water storage tank. The impact of tying the proposed 8-inch line from the OPUD water system to the EOCSD tank site has not been hydraulically modeled.

With the proposed connection to the OPUD water system, water pumped from within OPUD will be used to provide water to EOCSD. Although these are two separate districts, both districts are within the Kings River East Groundwater Sustainability Agency (GSA). Therefore, groundwater will stay within the boundaries of the GSA.

### **3.3.4 - WATER STORAGE FACILITIES**

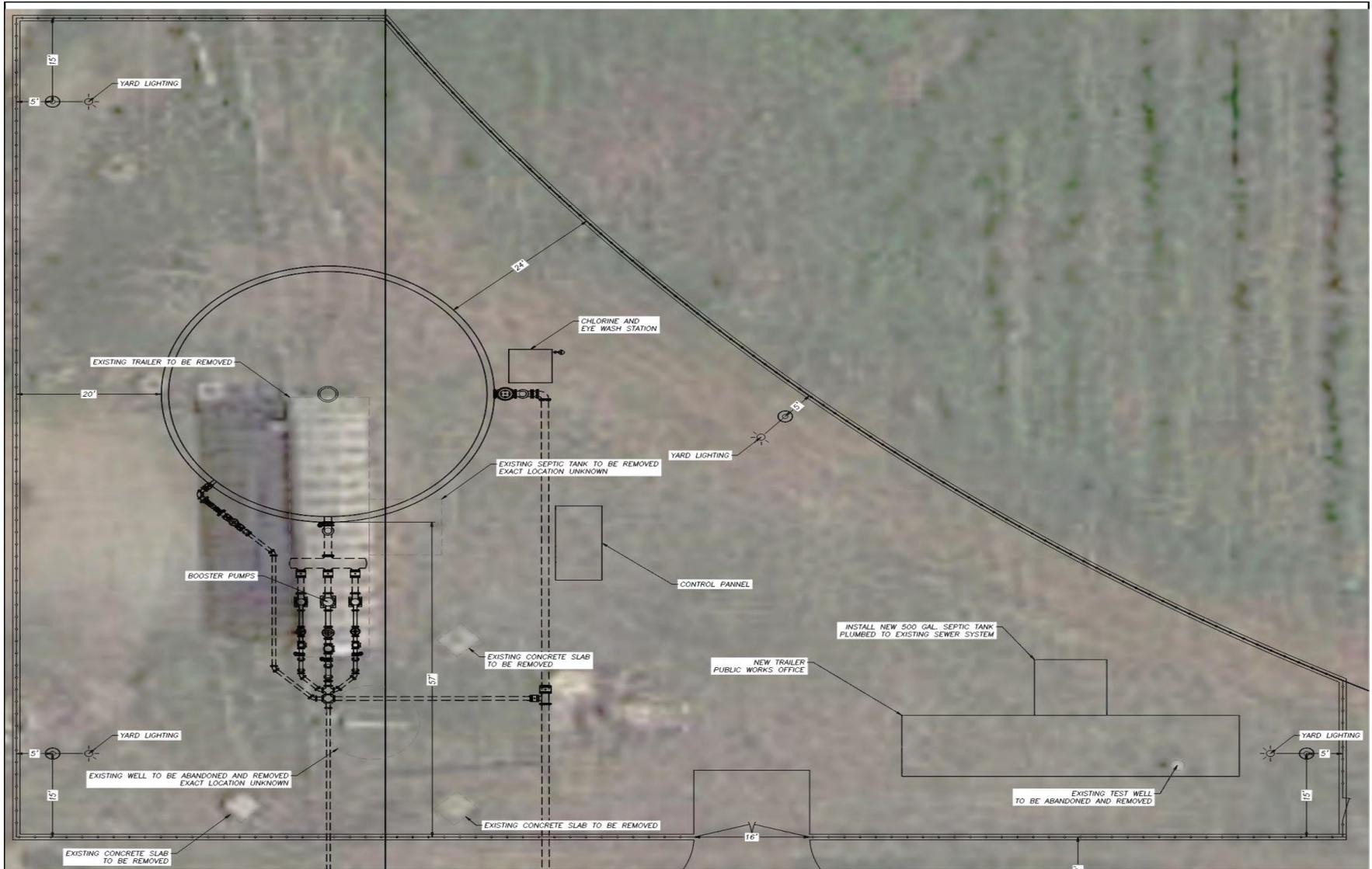
A storage tank will be required for East Orosi to meet MDD and fire flow demands. It is preliminarily estimated that a 300,000-gallon tank (storage volume) could provide 24 hours of maximum day demand (243 gpm) plus residential fire flow (1 hour x 1,000 gpm). The best location for such a storage facility is the current location of the District office in the field east of Road 140 (Figure 9).

### **3.3.5 - ASSUMPTIONS AND TANK DESIGN CRITERIA**

1. Assuming a welded steel water storage tank.
2. Tank height will be 24 feet.
3. Tank overflow will be at 23 feet.
4. Unusable space at the tank bottom is 1 foot.
5. Tank diameter is 50.5 feet.
6. Total volume of the tank is 361,541 gallons.
7. Usable height is 22 feet, which equates to 329,600 gallons of usable volume.
8. Usable volume allows for more than one and half days of storage at average daily usage.
9. Inlet and outlet are 90 degrees apart from each other to prevent short-circuiting.

### **3.3.6 - ASSUMPTIONS AND BOOSTER PUMPS DESIGN CRITERIA**

1. Booster pump system is designed for 250 gpm and 55 psi.
2. Booster pump system will consist of two pumps equipped with VFDs.
3. System is designed to operate with one pump with a second pump for redundancy.
4. Fire flow will be provided by a 1,000 gpm high-flow pump.



**Figure 9**  
**Storage Tank Location**



### **3.3.7 - EOCSD DISTRIBUTION SYSTEM**

In 1984, EOCSD's distribution system was upgraded with the installation of 4-inch and 6-inch PVC piping and interconnection to the two existing wells.

There are, at present, approximately 8,900 feet of in-community and well-connection piping, with related valving and wharf hydrants. Information provided by the District, through Self-Help Enterprises, and by the private operations/maintenance company, which the District employs, indicates that the system is experiencing no excessive maintenance or evident deterioration or delivery pressure problems.

However, the water distribution system is almost 40 years old and is undersized to provide adequate fire flow based on the current Fire Code; it is recommended that the entire distribution system be replaced.

The entire distribution system will be replaced with 8-inch PVC pipes. The existing distribution system will be abandoned in place, with the existing piping being cut and capped once the new system is operational.

### **3.3.8 - METERING**

There are approximately 101 residential connections in East Orosi. All are metered, but not with modern remote read and recording meters. There has been no continuing meter maintenance or accuracy-check program. The meters are not considered accurate and, as such, have not been utilized as a basis for monthly billing.

Existing residential services connections will be equipped with remote-read equipment which is fully compatible with Orosi's metering to facilitate either District consolidation or an agreed meter maintenance/meter reading contractual service by Orosi. Such equipment will require new, right-of-way-located meter boxes to connect to the new distribution system.

In addition, the Family Education Center and any new residential connections anticipated to connect and served by OPUD will need an OPUD-compatible meter.

### **3.3.9 - LATERAL CONNECTIONS**

Installation of approximately 101 new lateral service connections within EOCSD and one for the Family Education Center. Abandonment of existing laterals once new laterals are placed into service.

Along the proposed pipeline route on Avenue 416, between Orosi and East Orosi, there are approximately 30 residences served by private wells. Many of these wells have nitrate concentrations greater than the MCL of 10 mg/L. There is the possibility these residences could be served by this proposed project. These services would need to comply with the same metering requirements as East Orosi.

### **3.4 - Project Criteria**

The physical piping connection from the well to East Orosi is outlined as follows:

1. Approximately 3,050 feet of 10-inch pipeline connecting the wellsite to Orosi (west on 408, north on SR 63, and connecting to Orosi's distribution system near the intersection of Albert Avenue and SR 63).
2. Approximately 6,700 feet of 8-inch pipeline connecting Orosi to East Orosi (east on Avenue 416 connecting to East Orosi distribution system near the intersection of Avenue 416 and Fruitvale Avenue).
3. Replacing the East Orosi distribution system with approximately 9,450 feet of 8-inch pipeline.
4. Incorporate the services along the 8-inch pipeline along Avenue 416.

Once the new water system is operational, the two existing wells in East Orosi will be abandoned.

### **3.5 - Comprehensive Response to Climate Change**

The Drinking Water State Revolving Fund, Technical Package, requires the Preliminary Engineering Report to identify how the proposed project and facilities are vulnerable to climate change and the impact they may have on climate change.

#### **3.5.1 - VULNERABILITY**

Identify the effects of climate change to which the facilities may be susceptible:

- **Water Supply Depletion:** The proposed project relies on groundwater. As such, the proposed well could be adversely impacted if the groundwater supply in the area decreases below the depth of the well.
- **Drought:** The proposed project relies on groundwater. As such, the proposed well could be adversely impacted if a drought lowers the groundwater elevation in the area below the depth of the well.
- **Water Supply Quality:** Groundwater quality in the area is known to be high in nitrates and pesticides. If the groundwater levels in the area decrease, there is the possibility that the proposed well may be susceptible to degraded groundwater quality.

#### **3.5.2 - ADAPTATION**

Identify measures taken in response to climate change:

- **Additional Storage:** The proposed project provides a water storage tank for the existing water system that does not have water storage.

- **Fire Resistant Water Connections and Hydrants:** The proposed project will provide new water connections and fire hydrants capable of supplying adequate flows to meet the Fire Code. The existing water system cannot provide adequate fire flow.

### **3.5.3 - MITIGATION**

Identify actions taken to reduce concentrations of greenhouse gases in the atmosphere:

- **Water Conservation:** The proposed project will provide water meters for all services. The existing water system has outdated water meters that are not accurate. Due to this, existing customers are charged a flat rate for water instead of charging based on usage. After the proposed project is operational, customers will be charged based on water usage. This will lead to water conservation in the system.

### **3.6 - Facilities Costs**

The project is expected to be bid in its entirety to a single general contractor. The estimated project costs based on currently available data are shown in the following table. This report does not include any connection fees to be charged by OPUD for the EOCS D connections. Any OPUD capacity/consolidation fee will be determined once the production well is developed and other parameters are addressed. If there is enough excess capacity in the production well, the fee will be re-evaluated.

As a further caveat, these costs have utilized conservative design assumptions, including, for example, the assumption that both existing residential services and some rights-of-way conditions may result in County demands that pavement be replaced rather than trench-patched.

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization / Demobilization [5% max]	1	L.S.	\$315,000	\$ 315,000.00
2	Stormwater pollution Prevention Plan	1	L.S.	\$30,000	\$ 30,000.00
3	Traffic Control Plan	1	L.S.	\$50,000	\$ 50,000.00
4	Dust Control Plan	1	L.S.	\$10,000	\$ 10,000.00
5	Site Grading	1	L.S.	\$50,000	\$ 50,000.00
6	Abandon existing well	2	L.S.	\$25,000	\$ 50,000.00
7	Booster Pump and all related appurtenances including concrete pad, complete and in place	2	E.A.	\$50,000	\$ 100,000.00
8	Fire Pump and all related appurtenances including concrete pad, complete and in place	1	E.A.	\$100,000	\$ 100,000.00
8	360,000 Gallon Welded Steel Water Storage Tank, ringwall, mixer and all related appurtenances, complete and in place	1	L.S.	\$900,000	\$ 900,000.00
9	Drill Production Well	1	L.S.	\$500,000	\$ 500,000.00
10	Equipping of Water Well; pump, pipe, valves, fittings and all related appurtenances, complete and in place	1	L.S.	\$175,000	\$ 175,000.00
11	10" PVC C900 DR 18 Water Main, fittings, valves, and thrust blocks	3050	L.F.	\$165	\$ 503,250.00
12	8" PVC C900 DR 18 Water Main, fittings, valves, and thrust blocks	6700	L.F.	\$145	\$ 971,500.00
13	8" PVC C900 DR 18 Water Main, fittings, valves, and thrust blocks	9450	L.F.	\$145	\$ 1,370,250.00
14	Fire Hydrants	11	E.A.	\$1,500	\$ 16,500.00
15	Boring Canals (\$625/LF @ 100')	2	E.A.	\$62,500	\$ 125,000.00
16	1.0" Water Meters (EOCSD)	101	E.A.	\$1,100	\$ 111,100.00
17	Laterals from meter to house (asssuming 30' of lateral)	101	E.A.	\$2,000	\$ 202,000.00
18	1.0" Water Meters (Family Ed Center)	1	E.A.	\$2,500	\$ 2,500.00
19	12' Chain Link Double Gate	3	E.A.	\$1,000	\$ 3,000.00
20	4' Chain Link Pedestrian Gate	2	E.A.	\$300	\$ 600.00
21	6' Chain Link Fence	450	L.F.	\$110	\$ 49,500.00
22	Chlorination Equipment, including pad, storage structure, piping and meters	2	L.S.	\$35,000	\$ 70,000.00
23	Emergency Eye Wash and Shower	2	E.A.	\$5,000	\$ 10,000.00
24	Transformer Slab, Box, Cover and Bollards	2	E.A.	\$5,000	\$ 10,000.00
25	Main Switchboard and MCC - Well Site	1	L.S.	\$100,000	\$ 100,000.00
26	Main Switchboard and MCC - Tank Site	1	L.S.	\$250,000	\$ 250,000.00
27	Electrical Conduit and wire	1	L.S.	\$160,000	\$ 160,000.00
28	Yard lighting, Electrical Conduit, Wire and Footing	2	L.S.	\$30,000	\$ 60,000.00
29	Drain Box and Grate	1	E.A.	\$7,500	\$ 7,500.00
30	8" SDR35 drain pipe to retention basin	50	L.F.	\$125	\$ 6,250.00
31	Trenching	75	S.F.	\$50	\$ 3,750.00
32	Gravel Surfacing Complete and In place	30000	S.F.	\$3	\$ 90,000.00
33	Electrical Connection to site and all related appurtenances	1	L.S.	\$250,000	\$ 250,000.00
				Subtotal:	\$ 6,652,700.00
				Contingencies: 10% (±)	\$ 665,270.00
				<b>Total:</b>	\$ 7,317,970.00
<b>Bid Alternate A - Services Along Ave 416</b>					
34	1.0" Water Meters (Ave 416)	30	E.A.	\$1,100	\$ 33,000.00
35	Laterals from meter to house (asssuming 30' of lateral)	30	E.A.	\$2,000	\$ 60,000.00
				Subtotal:	\$ 93,000.00
				Contingencies: 10% (±)	\$ 9,300.00
				<b>Total:</b>	\$ 102,300.00
<b>GRAND TOTAL</b>					\$ 7,420,270.00

**APPENDIX A**

**GEOHYDROLOGIST REPORT, EAST OROSI COMMUNITY SERVICES DISTRICT TEST WELL,  
AVENUE 408, TULARE COUNTY**

KENNETH D. SCHMIDT AND ASSOCIATES

GROUNDWATER QUALITY CONSULTANTS

600 WEST SHAW AVE., SUITE 250

FRESNO, CALIFORNIA 93704

TELEPHONE (559) 224-4412

August 18, 2016

Mr. Harry Tow  
Quad Knopf Inc.  
901 East Main Street  
Visalia, CA 93292

Re: E. Orosi CSD Test Well

Dear Harry:

During July 20-28, Johnson Drilling Co. of Reedley completed a casing hammer test well to a depth of 590 feet. We logged the drill cuttings and prepared a geologic log, which is attached. Alluvial deposits were encountered to a depth of 588 feet and hardrock was encountered below that depth. The deposits above a depth of 391 feet were primarily brown in color. Blue or gray-green deposits were present from 391 to 421 feet in depth. Gray or brown deposits were present from 421 to 453 feet in depth. Green deposits were predominant below a depth of 453 feet, except for a black sand from 568 to 572 feet in depth. Fine-grained layers that could function as confining beds below a depth of 180 feet were present in the following depth intervals:

181 to 255 feet	333 to 352 feet
265 to 281 feet	421 to 431 feet.

Depth to water ranged from 89 to 100 feet at the time of drilling. Water samples were collected from a total of 10 different depth intervals by airlifting. A submersible pump was installed at two of these intervals (255 to 260 feet and 394 to 400 feet in depth) to allow collection of pumped samples. The water samples were preserved and hand delivered to APPL, Inc. in Clovis for analyses of inorganic and trace organic constituents. Samples for radiological analyses were preserved and shipped to FGL Environmental in Santa Paula.

Total dissolved solids (TDS) concentrations ranged from 236 to 460 mg/l. The lowest TDS concentrations (less than 280 mg/l) were present between 255 and 357 feet and 453 and 496 feet in depth. Nitrate concentrations generally decreased with increasing depth, and were all less than the MCL of 45 mg/l. Nitrate concentrations in samples from below a depth of 255 feet were 15 mg/l or

KENNETH D. SCHMIDT AND ASSOCIATES  
GROUNDWATER QUALITY CONSULTANTS

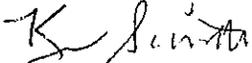
2

less. Iron and arsenic concentrations were well below the respective MCLs of 0.3 mg/l and 10 ppb. Manganese concentrations ranged from less than 0.01 to 0.21 mg/l. Concentrations exceeded the recommended MCL of 0.05 mg/l in samples from 173 to 179 feet, 394 to 458 feet, and for 572 to 577 feet in depth. Alpha activities in all of the samples were less than the MCL. DBCP, EDB, and 1,2,3-TCP concentrations were non-detectable in all of the samples.

A new well can be constructed at the site. I recommend not tapping strata below a depth of 570 feet and between 390 and 430 feet in depth. Blank casing would be installed from the surface to 255 feet, from 390 to 430 feet, and from 570 to 590 feet in depth. Louvered casing would be installed from 255 to 390 feet and 430 to 570 feet in depth. Gravel would be placed from 590 feet up to a depth of 230 feet. A gravel feed tube would be installed from 235 feet in depth to the surface. An annular seal would then be placed from 230 feet to the surface. Sieve analyses of fine sands by Roscoe Moss Co. indicate that a slot size of 0.06 inch and gravel gradation of 8x16 should be used. Such a well would tap about 140 feet of coarse-grained water producing deposits. A properly constructed and developed well should produce about 1,200 to 1,400 gpm.

Please call me if you have any questions.

Sincerely yours,

  
Kenneth D. Schmidt

KDS/cl

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL

Depth (feet)	Description
0 - 6	Red-brown sandy silt
6 - 12	Red-brown fine to medium sand
12 - 32	Red-brown sandy clay
32 - 41	Red-brown silty fine sand
41 - 85	Brown silt
85 - 91	Brown silty clay
91 - 101	Brown clay
101 - 138	Red-brown sandy clay
138 - 150	Brown decomposed clayey coarse sand
150 - 158	White and brown clayey decomposed rock
158 - 169	Brown and white clay
169 - 174	Brown clay
174 - 181	Brown clayey medium to coarse sand and gravel
181 - 210	Light brown clay
210 - 255	Brown clayey silt
255 - 257	Brown cemented fine to medium sand
257 - 265	Brown fine to medium sand
265 - 281	Pink dry clay
281 - 292	Pink clay and brown fine to medium sand
292 - 296	Brown cemented fine to medium sand
296 - 301	Brown fine to medium sand
301 - 312	Light brown sandy clay
312 - 318	Brown fine sand
318 - 322	Gray-brown sandy clay
322 - 333	Gray-brown clayey fine sand
333 - 352	Gray and pink dry clay
352 - 361	Brown medium sand
361 - 375	Brown fine to medium sand with clay
375 - 381	Brown clayey medium to coarse sand
381 - 389	Brown clayey coarse sand
389 - 391	Light brown clay
391 - 393	Blue-green clay
393 - 411	Blue-green very fine to fine sand
411 - 419	Gray-green clay
419 - 421	Gray-green silty indurated clay
421 - 429	Gray sandy clay
429 - 431	Light brown clay

Continued:

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL  
(Continued:)

<u>Depth (feet)</u>	<u>Description</u>
431 - 435	White coarse sand
435 - 438	Light brown clay
438 - 445	Brown-green medium to coarse sand
445 - 453	Light brown clay
453 - 468	Brown-green fine to medium sand
468 - 471	Green cemented fine to medium sand
471 - 475	Green medium to coarse sand
475 - 491	Green clayey medium to coarse sand
491 - 511	Brown silty fine sand
511 - 512	Pink and light brown clay
512 - 513	Green clay
513 - 521	Green fine to medium sand
521 - 529	Green clay
529 - 533	Green fine to medium sand
533 - 539	Green clay
539 - 568	Green fine to medium sand
568 - 572	Black cemented fine to medium sand
572 - 588	Green clayey medium to coarse sand
588 - 590	Hard rock

EAST OROSI CSD TEST WELL - WATER QUALITY TABLE

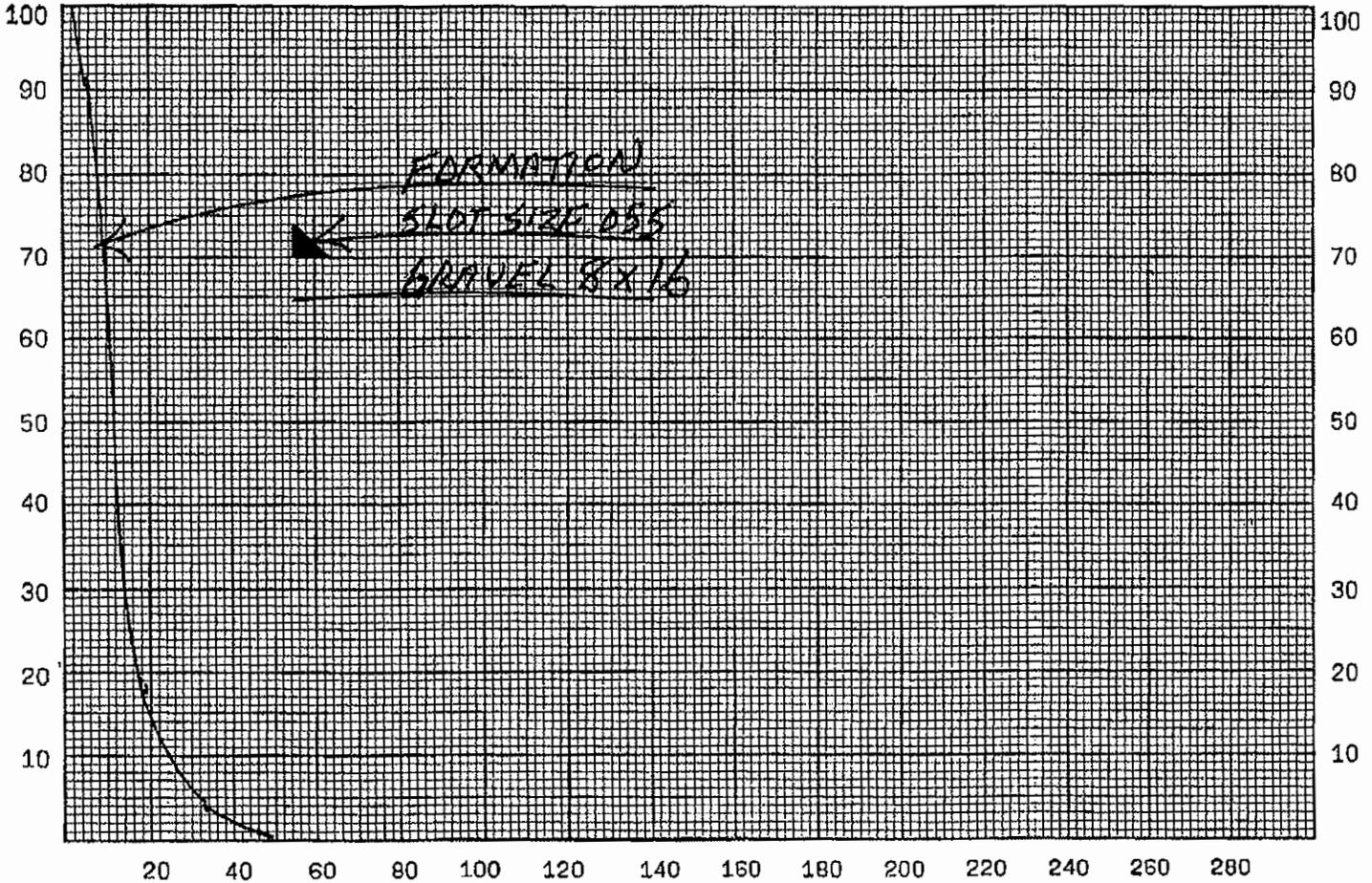
Depth Interval (feet)	Fe (mg/l)	Mn (mg/l)	As (ppb)	NO <sub>3</sub> (mg/l)	EC umhos/cm	TDS (mg/l)	pH	DBCP (ppb)	EDB (ppb)	1,2,3 TCP (ppt)	Perchlorate (µg/l)	Gross Alpha (pci/l)	SWL (ft)
138-141 A	<0.03	0.031	1.3	41	533	367	8.0	<0.01	<0.01	< 5	1.4	2.1	
173-179 A	<0.03	0.056	1.5	36	506	352	8.1	<0.01	<0.01	< 5	1	2.7	
255-260 A	<0.03	0.062	1.4	15	325	236	8.1	<0.01	<0.01	< 5	1.5	0.4	
255-260 P	<0.03	0.009	1.9	14	330	238	7.6	<0.01	<0.01	< 5	1.7	0.0	89.3
295-300 A	<0.03	0.021	1.4	15	355	243	8.1	0.01	<0.01	< 5	2.2	1.3	
352-357 A	<0.03	0.032	1.2	7	416	279	8.1	<0.01	<0.01	< 5	0.8	1.0	
394-400 A	<0.03	0.138	1.8	1	596	348	8.2	<0.01	<0.01	< 5	<1	0.8	
394-400 P	<0.03	0.211	2.4	< 0.5	605	346	7.6	<0.01	<0.01	< 5	<1	1.1	110.3
453-458 A	<0.03	0.057	1.3	7	411	276	8.1	<0.01	<0.01	< 5	<1	0.0	
491-496 A	0.03	0.023	1.8	8	382	260	8.1	<0.01	<0.01	< 5	<1	0.2	
529-534 A	<0.03	0.041	1.7	8	496	326	8.1	<0.01	<0.01	< 5	<1	0.7	
572-577 A	<0.03	0.066	1.2	6	704	460	8	<0.01	<0.01	< 5	<1	0.5	

# ROSCOE MOSS MANUFACTURING COMPANY

SAN JOAQUIN VALLEY DIVISION  
Route 1, Box 52, McFarland, Calif. 93250

(800) 827-1881

PHONE  
BAKERSFIELD (861) 393-5756  
FAX (861) 393-1824



(VERTICAL #'S REPRESENT PERCENT RETAINED)  
(HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt + Assoc  
East Orvis  
TW

SLOT OPENING RECOMMENDED 055

470

RECOMMENDED SCREEN : DIA. \_\_\_\_\_ IN. LENGTH \_\_\_\_\_ FT

DATE 8/9/16

BY: [Signature]

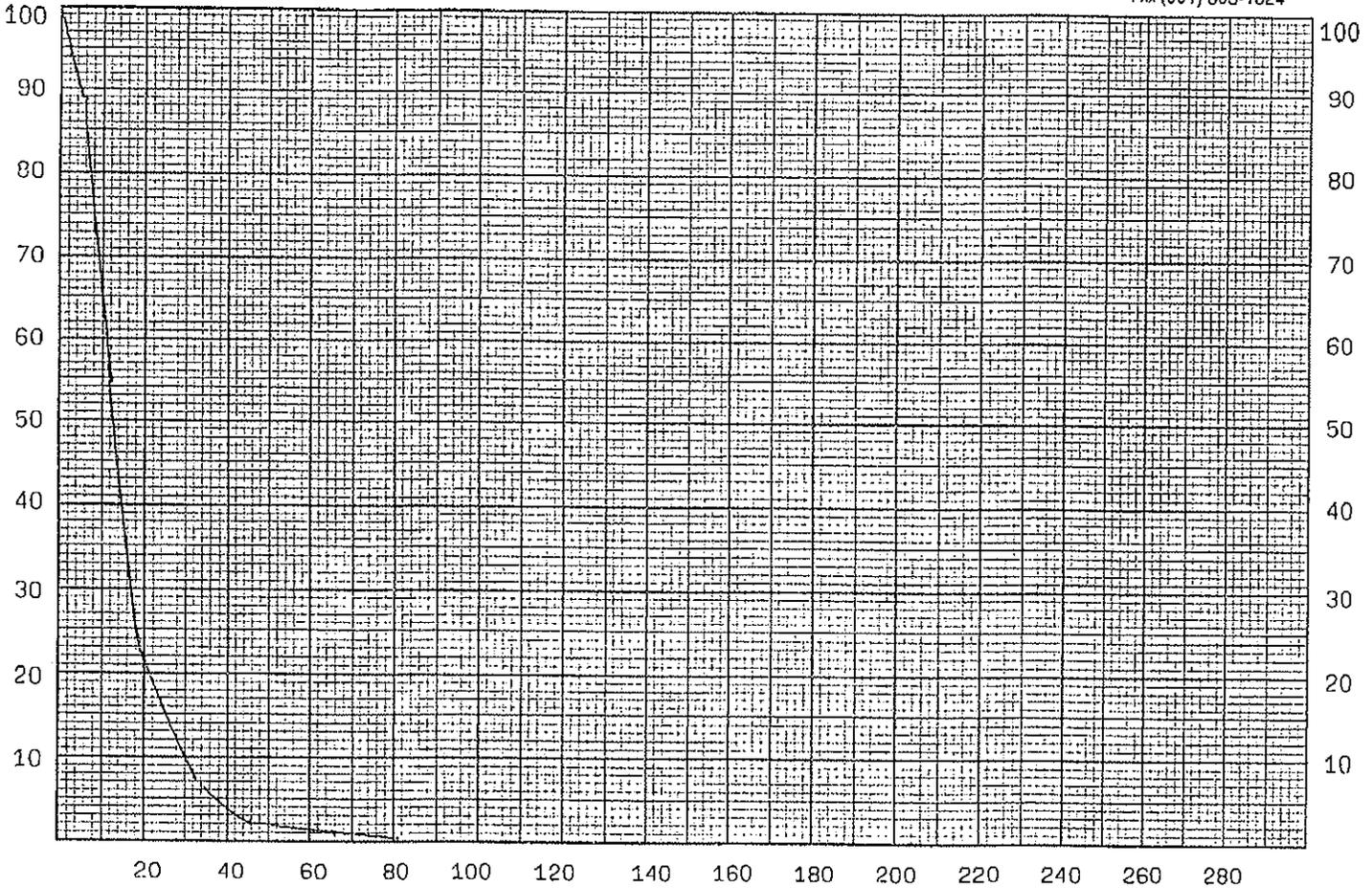
SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED		
	WT W/BKR	WT.	%
0.187			
0.132			
0.0937		2	01
0.0661		3	01
0.0469		5	01
0.0331		12	04
0.0197		51	18
0.0117		144	53
0.0059		247	91
PAN		271	100
BKR. WT.			

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BAKERSFIELD (661) 393-5756  
FAX (661) 393-1824



(VERTICAL #'S REPRESENT PERCENT RETAINED)  
(HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt & Assoc  
East Orosi  
TW

SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED		
	WT W/BKR	WT.	%
0.187			
0.132			
0.0937		2	01
0.0661		3	01
0.0469		7	02
0.0331		17	07
0.0197		57	24
0.0117		133	56
0.0059		210	89
PAN		295	100
BKR. WT.			

SLOT OPENING RECOMMENDED .055

260

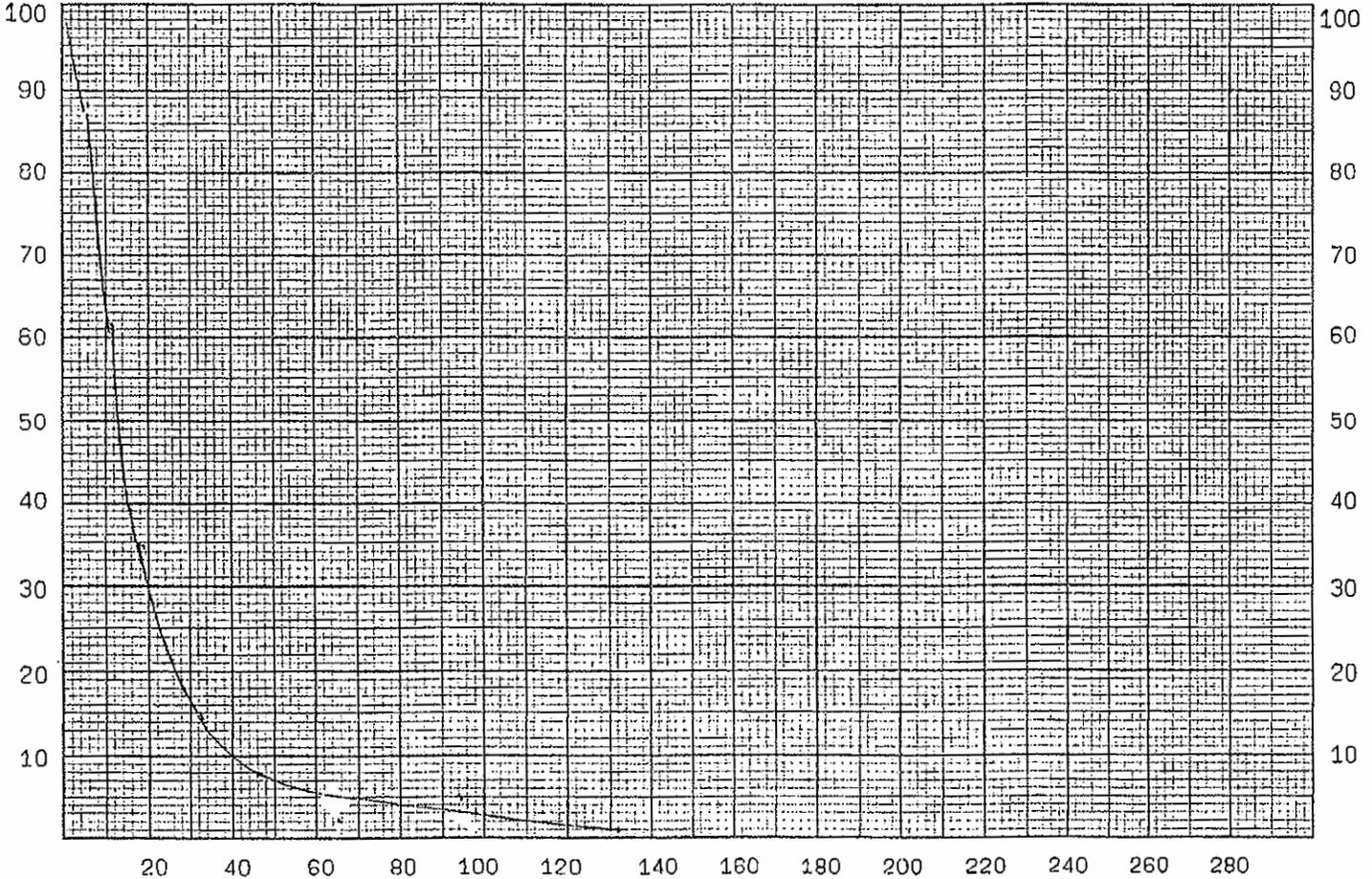
RECOMMENDED SCREEN : DIA. \_\_\_\_\_  
IN. LENGTH \_\_\_\_\_ FT

DATE 5/9/16  
BY: [Signature]

**ROSCOE MOSS MANUFACTURING COMPANY**  
**SAN JOAQUIN VALLEY DIVISION**  
 ROUTE 1, BOX 52, MCFARLAND, CALIF. 93250

(800) 827-1981

PHONE  
 BAKERSFIELD (661) 393-5756  
 FAX (661) 393-1824



(VERTICAL #'S REPRESENT PERCENT RETAINED)  
 (HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt Assoc  
East Orsi  
TW

SLOT OPENING RECOMMENDED .055

310

RECOMMENDED SCREEN : DIA. \_\_\_\_\_ FT  
 \_\_\_\_\_ IN. LENGTH \_\_\_\_\_ FT

DATE 8/9/16  
 BY: Thomas Smith

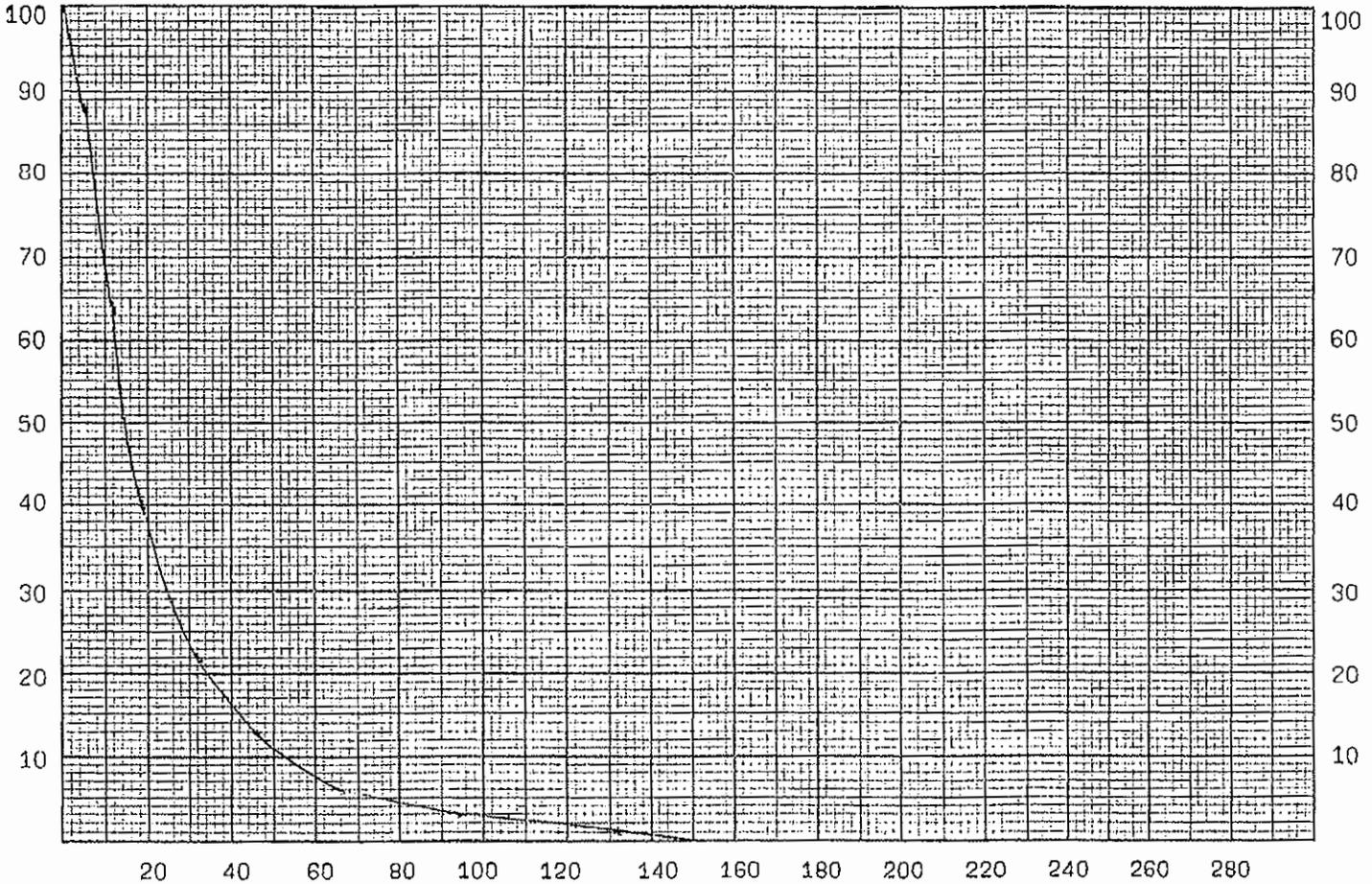
SIEVE OPENINGS	CUMULATIVE PERCENT.		RETAINED
	WT W/BKR	WT.	%
0.187			
0.132		3	01
0.0937		5	02
0.0661		10	04
0.0469		18	08
0.0331		33	14
0.0197		76	34
0.0117		137	61
0.0059		193	87
PAN		221	100
BKR. WT.			

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FAX (661) 393-1824



(VERTICAL #'S REPRESENT PERCENT RETAINED)  
(HORIZONTAL #'S REPRESENT SIEVE OPENINGS)

NOTES: Ken Schmidt & Assoc  
East Oros  
TW

SLOT OPENING RECOMMENDED 055

330

RECOMMENDED SCREEN : DIA. \_\_\_\_\_ FT  
IN. LENGTH \_\_\_\_\_

DATE 8/9/16  
BY: Thomas D. Smith

SIEVE OPENINGS	CUMULATIVE PERCENT. RETAINED	
	WT W/BKR	WT. %
0.187		2
0.132		4
0.0937		9
0.0661		20
0.0469		38
0.0331		64
0.0197		118
0.0117		185
0.0059		255
PAN		289
BKR. WT.		100

**APPENDIX B**

**SMALL PROJECT ANALYSIS LEVEL ASSESSMENT**

# AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

**East Orosi Water Main  
East Orosi, California**

**Prepared For:**



**QK, Inc.**  
5080 California Avenue, Suite 220  
Bakersfield, CA 93309

**Prepared By:**

**TRINITY CONSULTANTS**  
4900 California Avenue, Suite 420A  
Bakersfield, CA 93309  
661.282.2200

September 2020  
Revised October 2022

Project 200505.0166



## TABLE OF CONTENTS

---

<b>1. EXECUTIVE SUMMARY</b>	<b>1-1</b>
1.1 Executive Summary .....	1-1
1.2 Statement of Finding .....	1-1
<b>2. PROJECT INFORMATION</b>	<b>2-1</b>
2.1 Introduction.....	2-1
2.2 Project Location .....	2-1
<b>3. SMALL PROJECT ANALYSIS LEVEL QUALIFICATION</b>	<b>3-1</b>
<b>4. AIR QUALITY IMPACTS THRESHOLDS AND EVALUATION METHODOLOGY</b>	<b>4-1</b>
4.1 SJVACPD Significance Criteria .....	4-1
4.2 Thresholds for Ambient Air Quality Impacts.....	4-2
4.3 Thresholds for Hazardous Air Pollutants.....	4-2
<b>5. PROJECT-RELATED EMISSIONS</b>	<b>5-1</b>
5.1 Short-Term Criteria Pollutant Emissions .....	5-1
5.2 Long-Term Criteria Pollutant Emissions .....	5-1
5.3 Greenhouse Gas Emissions .....	5-2
5.4 Potential Impacts to Visibility to Nearby Class 1 Areas .....	5-2
5.5 Potential Odor Impacts.....	5-2
5.6 Ambient Air Quality Impacts.....	5-3
5.7 Toxic Air Contaminant (TAC) Impacts .....	5-3
5.7.1 Asbestos .....	5-3
5.7.2 Diesel Particulate Matter.....	5-3
5.8 Potential Impact on Sensitive Receptors.....	5-5
<b>6. CONCLUSIONS</b>	<b>6-1</b>
<b>7. REFERENCES</b>	<b>7-1</b>
<b>APPENDIX A. CALEEMOD EMISSIONS ESTIMATES OUTPUT FILES</b>	<b>A-1</b>
<b>APPENDIX B. HEALTH RISK ASSESSMENT MODELING FILES</b>	<b>B-1</b>

## LIST OF FIGURES

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Figure 2-1. Project Location

2-2

## LIST OF TABLES

---

Table 3-1. Industrial Projects SPAL Reference Sizes	3-1
Table 4-1. SJVAPCD Air Quality Thresholds of Significance - Criteria Pollutants	4-1
Table 4-2. Measures of Significance – Toxic Air Contaminants	4-2
Table 5-1. Construction Emissions	5-1
Table 5-2. Total Project Operational Emissions	5-2
Table 5-3. Potential Maximum Impacts Predicted by HARP	5-5
Table 5-4. Sensitive Receptors Located < 1 Mile from Project	5-5

# 1. EXECUTIVE SUMMARY

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## 1.1 Executive Summary

Trinity Consultants has completed a limited air quality assessment for the installation of a replacement well, the installation of a new 300,000-gallon storage tank, the replacement of distribution pipelines, and the connection of the replacement well and new tank to the proposed and existing pipelines. This project (Project) will be located in East Oroshi, California. The replacement well will be located on Avenue 408, east of Road 128; the new storage tank will be installed south of Florida Avenue and east of Ione Road (see **Figure 2-1**).

This limited air quality assessment uses the San Joaquin Valley Air Pollution Control District's (SJVAPCD) screening tool, Small Project Analysis Level (SPAL)<sup>1</sup>. This assessment was prepared pursuant to the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI)<sup>2</sup>, the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21189) and the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

## 1.2 Statement of Finding

Based on the thresholds established by the SJVAPCD's GAMAQI, the emissions estimates prepared pursuant to this limited air quality assessment do not exceed the SJVAPCD's established emissions thresholds and significance thresholds for all CEQA air quality determinations; this Project would therefore not pose a significant impact to the San Joaquin Valley Air Basin and would have a less than significant air quality impact.

---

<sup>1</sup> SJVAPCD, 2020, <http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF>.

<sup>2</sup> SJVAPCD, 2015, <https://www.valleyair.org/transportation/GAMAQI.pdf>.

## 2. PROJECT INFORMATION

---

### 2.1 Introduction

The Project site is located in the community of East Oroshi, California. The East Oroshi community receives its water supply from two different wells. Well 1 is located east of Ione Road and provides its water that meets State water quality requirements. Well 2 is located north of Avenue 416, east of Road 136, and contains produced water with high levels of primary nitrate contaminate. The Project includes the replacement of Well 2, installation of a 300,000-gallon storage tank, and the replacement of 40-year-old existing 4-inch and 6-inch asbestos containing concrete-covered water distribution pipeline. The replacement pipe distribution system, as show in

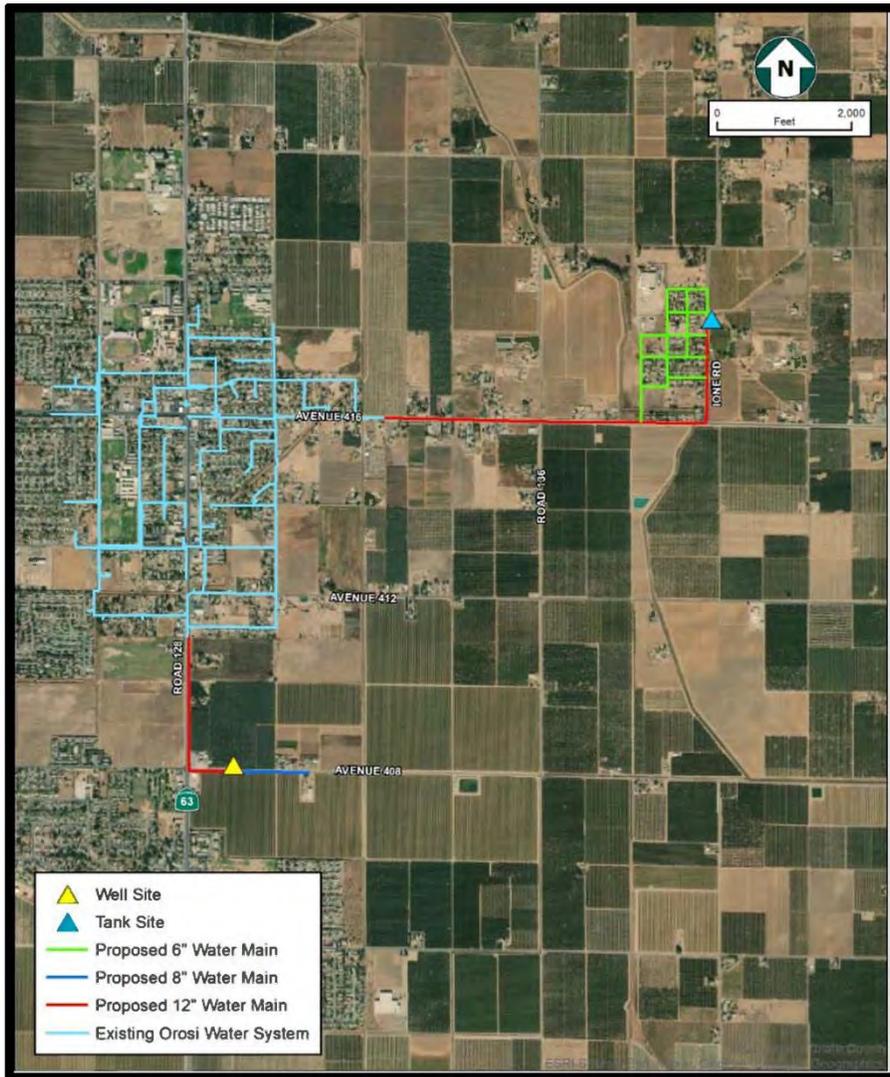
**Figure 2-1**, will consist of 6, 8, and 12-inch water mains totaling 20,592 linear feet and will connect the replacement well and new tank to the existing Orosi Public Utility District (OPUD) pipelines. Well 2 will connect to the proposed 8-inch pipeline running east on Avenue 408 and to the proposed 12-inch pipeline running west of Avenue 408 and then north on Road 128 connecting to the existing OPUD distributions system. Well 1 will be connected to the new East Orosi distribution system. Once the new Well 2 is constructed, the existing Well 2 will no longer be needed and abandoned. The new Well 2 will be located on Avenue 408 and will draw water from 255 to 390 feet and will be 430 to 570 feet in depth with a maximum pump capacity of approximately 700 gallons per minute. All pumps and generators serving the well will be electric. The 300,000-gallon water storage tank will be installed south of Florida Avenue and east of Ione Road. The storage tank will include an electric booster pump to send tank water north on to Fruitvale into the new East Orosi community distribution system. This assessment evaluates project-related air emissions to determine whether the emissions fall below the significance thresholds, thereby having a less than significant impact on air quality.

## 2.2 Project Location

The Project is located in the community of East Orosi. The new well will be located on Avenue 408, east of Road 128; the new storage tank will be installed south of Florida Avenue and east of Ione Road.

**Figure 2-1** depicts the Project location and pipeline distribution within the community of East Orosi. The red line shows the proposed 12-inch pipeline running west of Avenue 408 and then north on Road 128 connecting to the existing OPUD distributions system. The blue line shows the proposed 8-inch pipeline running east on Avenue 408. The green line shows the proposed 6-inch distribution system that will replace the 40-year-old existing 4-inch and 6-inch asbestos containing concrete-covered water distribution pipeline in East Orosi.

Figure 2-1. Project Location



### 3. SMALL PROJECT ANALYSIS LEVEL QUALIFICATION

This assessment was prepared pursuant to the SJVAPCD’s GAMAQI<sup>2</sup>, the CEQA (Public Resources Code 21000 to 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387). The SJVAPCD created the SPAL screening tool to streamline air quality assessments of commonly encountered projects. According to GAMAQI, the SJVAPCD “pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds”<sup>3</sup>.

The SJVAPCD SPAL process established review parameters to determine whether a project qualifies as a “small project.” A project that is found to be “less than” the established parameters has “no possibility of exceeding criteria pollutant emissions thresholds”<sup>1</sup>. The Project is predominantly construction related, as it is an upgrade to an existing Drinking Water Distribution System, and the operations are limited to maintenance of the well and tank sites, including pumps and generators. Due to the nature of the Project, “User Defined Industrial” land use was used in CalEEMod. **Table 3-1** presents the industrial project sizes that are “deemed to have a less than significant impact on air quality”

**Table 3-1. Industrial Projects SPAL Reference Sizes**

Land Use Category – Industrial	Project Size (square feet)*	ADT One-Way for all Fleet Types (except HHDT)	ADT One-Way for HHDT Trips Only
General Light Industry	280,000	550	70
Heavy Industry	900,000		
Industrial Park	295,000		
Manufacturing	472,000		
<b>Proposed Project**</b>	<b>125,600</b>	<b>1</b>	<b>2</b>
SPAL Exceeded?	No	No	No
*Project size based on SPAL Table 4(a)(b), as posted on SJVAPCD webpage: <a href="https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF">https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF</a> **Proposed Project size includes the estimated area where construction activities will take place (2 x 1024 square feet) and square footage of piping trenching (3.9 miles of pipe with a 6ft wide trench).			

<sup>3</sup> SJVAPCD GAMAQI, Section 8.3.4, Page 85.

## 4. AIR QUALITY IMPACTS THRESHOLDS AND EVALUATION METHODOLOGY

### 4.1 SJVAPCD Significance Criteria

Significance thresholds are based on the CEQA Appendix G Environmental Checklist Form (not included herein) and SJVAPCD air quality thresholds<sup>4</sup>. A potentially significant impact to air quality, as defined by the CEQA Checklist, would occur if the project caused one or more of the following to occur:

- ▶ Conflict with or obstruct implementation of the applicable air quality plan;
- ▶ Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- ▶ Expose sensitive receptors to substantial pollutant concentrations; and/or
- ▶ Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SJVAPCD has identified quantitative emission thresholds to evaluate the potential air quality impacts of a project. Emissions exceeding the established significance thresholds would be considered to have a significant impact if not adequately mitigated to below the thresholds. The SJVAPCD air quality thresholds from the GAMAQI are presented in Table 4-1<sup>4</sup>. The SJVAPCD separates construction emissions from operational emissions, and further separates permitted operational emissions from non-permitted operational emissions, for determining significance thresholds for air pollutant emissions.

**Table 4-1. SJVAPCD Air Quality Thresholds of Significance - Criteria Pollutants**

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
NO <sub>x</sub>	10	10	10
ROG	10	10	10
SO <sub>x</sub>	27	27	27
PM <sub>10</sub>	15	15	15
PM <sub>2.5</sub>	15	15	15

Source: SJVAPCD 2015

Criteria pollutant emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0<sup>5</sup>. This project would generate short-term construction criteria pollutant emissions. There will be no increase in long-term operational criteria pollutant emissions as this project is a replacement for an existing well, installation of a water tank, and all associated equipment will be electric.

<sup>4</sup> SJVAPCD, 2015, [0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf \(valleyair.org\)](https://www.valleyair.org/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf).

<sup>5</sup> California Air Pollution Control Officers Association (CAPCOA), 2020.

## 4.2 Thresholds for Ambient Air Quality Impacts

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would “violate any air quality standard or contribute substantially to an existing or projected air quality violation” would be considered to create significant impacts on air quality. The EPA has established the Federal Prevention of Significant Deterioration (PSD) program to determine what comprises “significant impact levels” (SIL) to NAAQS attainment areas. A project’s impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional “increment analysis” is required. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the Project would “violate any air quality standard or contribute substantially to an existing or projected air quality violation.” Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts for both a project and cumulative CEQA impact analysis. The SJVAB is classified as non-attainment for the O3 NAAQS and, as such, is subject to “non-attainment new source review” (NSR). PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance. As the Project would not include modification to the stationary source under NSR, it would not be subject to either PSD or NSR review.

## 4.3 Thresholds for Hazardous Air Pollutants

GAMAQI recommends that Lead Agencies consider situations wherein a new or modified source of TACs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to TACs.

The SJVAPCD’s GAMAQI states, “From a health risk perspective there are basically two types of land use projects that have the potential to cause long-term public health risk impacts:

- ▶ Type A Projects: Land use projects that will place new toxic sources in the vicinity of existing receptors,
- ▶ Type B Projects: Land use projects that will place new receptors in the vicinity of existing toxics sources”<sup>6</sup>

**Table 4-2** presents the thresholds of significance used with toxic air contaminants when evaluating toxic air contaminants (TACs).

**Table 4-2. Measures of Significance – Toxic Air Contaminants**

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
SJVAPCD	Carcinogens	Maximally Exposed Individual risk <b>equals or exceeds</b> 20 in one million.
	Non-Carcinogens	<b>Acute:</b> Hazard Index <b>equals or exceeds</b> 1 for the Maximally Exposed Individual. <b>Chronic:</b> Hazard Index <b>equals or exceeds</b> 1 for the Maximally Exposed Individual.

Source: SJVAPCD 2015

<sup>6</sup> SJVAPCD, 2015, <http://www.valleyair.org/transportation/0714-GAMAQI-TACs-Thresholds-of-Significance.pdf>.

## 5. PROJECT-RELATED EMISSIONS

This document was prepared pursuant to the SJVAPCD’s GAMAQI and SPAL guidelines and provides a cursory review of the Project emissions to demonstrate that it would not exceed established air quality emissions thresholds.

### 5.1 Short-Term Criteria Pollutant Emissions

**Table 5-1** shows the construction-related emission levels based on the anticipated construction timeline, equipment needed and default emission factors for said equipment. The construction timeline was based on similar projects and is summarized below:

- ▶ Water Well and Storage Tank Construction: 4 Days
- ▶ Pipeline Trenching and Installation: 21 Days

Construction emission estimates also included the following options available in the model to reduce PM<sub>10</sub> emissions in compliance with Air District Regulation VIII requirements:

- ▶ Water exposed area 3 times per day; and
- ▶ Reduce vehicle speed to less than 15 miles per hour.

Based on these anticipated activity levels, the Project construction activities would not exceed construction-related criteria pollutant thresholds (**Table 4-1**). Therefore, construction emissions were found to be less than significant, and no further evaluation is required.

**Table 5-1. Construction Emissions**

Emissions Source	Pollutant					
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2022 Construction Emissions (pounds/day)	0.9120	9.2960	6.7360	0.0168	0.5152	0.0049
2022 Construction Emissions (tons/year)	0.0114	0.1162	0.0842	0.0002	0.0064	0.0049
SJVAPCD Construction Emissions Thresholds (tons/year)	10	10	100	27	15	15
Is Threshold Exceeded?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

### 5.2 Long-Term Criteria Pollutant Emissions

Long term emissions are caused by operational mobile, area, and stationary sources. The only long-term emissions from this Project would be from maintenance trips which are already required for the existing wells. In addition, there would be a minimal incremental increase in electricity usage from the water tank’s booster pump. Therefore, the proposed Project’s long-term air quality emissions are expected to be negligible, and would not pose a significant impact to criteria air pollutants.

**Table 5-2. Total Project Operational Emissions**

Emissions Source	Pollutant					
	ROG	NOx	CO	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Operational Emissions (pounds/day)	0.0064	0.0072	0.0720	0.0000	0.0168	0.0048
Operational Emissions (tons/year)	0.0001	0.0001	0.0009	0.0000	0.0002	0.0001
SJVAPCD Operational Emissions Thresholds – non-permitted sources	10	10	100	27	15	15
Is Threshold Exceeded?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

As calculated (see Appendix A), the long-term operational emissions associated with the proposed Project would be less than SJVAPCD significance threshold levels and would, therefore, not pose a significant impact to criteria air pollutants. This finding is consistent with the SPAL screening thresholds.

### 5.3 Greenhouse Gas Emissions

The Project’s greenhouse gas (GHG) emissions are primarily from mobile source activities during construction and energy usage during operations. The short-term construction GHG emissions will not have a significant impact and there are no new long-term operation GHG emissions as the project is a replacement of the existing facilities water pump and installation of a storage tank. Therefore, the Project is considered less than significant for GHG emission impacts.

### 5.4 Potential Impacts to Visibility to Nearby Class 1 Areas

It should be noted that visibility impact analyses are not usually conducted for area sources. The recommended analysis methodology was initially intended for stationary sources of emissions which were subject to the Prevention of Significant Deterioration (PSD) requirements in 40 CFR Part 60. Since the Project’s emissions are predicted to be significantly less than the PSD threshold levels, an impact at either the Dome Land Wilderness or the Sequoia National Park Areas (the two nearest Class 1 areas to the Project) is extremely unlikely. Therefore, based on the Project’s predicted emissions, the Project is not expected to have any adverse impact to visibility at any Class 1 Area.

### 5.5 Potential Odor Impacts

The proposed Project is a well and water tank located near residential neighborhoods. Expected uses are not known to be a source of nuisance odors and are not listed in Table 6 of the SJVAPCD’s GAMAQI<sup>7</sup>. The Project is therefore not anticipated to have substantial odor impacts. The Project is therefore anticipated to have a less than significant odor impact.

<sup>7</sup> SJVAPCD GAMAQI, Section 8.6, Table 6, Page 103.

## 5.6 Ambient Air Quality Impacts

As stated in the of GAMAQI<sup>8</sup>, SJVAPCD has developed screening levels for requiring an Ambient Air Quality Analysis (AAQA). The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

As shown above in **Table 5-1** and

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<sup>8</sup> SJVAPCD GAMAQI, Section 8.4.4, Page 96-97.

**Table 5-2**, average daily emissions for construction and operational activities associated with this Project would not exceed 100 pounds per day. Therefore, an AAQA is not required for this Project.

## 5.7 Toxic Air Contaminant (TAC) Impacts

TACs, as defined by the California Health & Safety Code (CH&SC) §44321, are listed in Appendices AI and AII in AB 2588 Air Toxic “Hot Spots” and Assessment Act’s Emissions Inventory Criteria and Guideline Regulation document. The proposed Project includes the removal of asbestos-containing pipeline and the operation of diesel-powered equipment which would potentially result in emissions of TACs. SJVAPCD’s risk management objectives for permitting and CEQA are as follows<sup>9</sup>:

- ▶ Minimize health risks from new and modified sources of air pollution.
- ▶ Health risks from new and modified sources shall not be significant relative to the background risk levels and other risk levels that are typically accepted throughout the community.
- ▶ Avoid unreasonable restrictions on permitting.

### 5.7.1 Asbestos

The Project includes the removal of asbestos-containing pipelines. The removal and disposal of these pipes could potentially release asbestos into the air. Removal of the asbestos containing materials will be done in accordance with Federal, State and SJVAPCD regulations such as 40 CFR Part 61, CCR Title 8, and SJVAPCD Rule 4002. Examples of procedures to minimize asbestos emissions are as follows:

- ▶ Adequately wet all RACM [regulated asbestos-containing material] exposed during cutting or disjoining operations; and
- ▶ Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM<sup>10</sup>.

### 5.7.2 Diesel Particulate Matter

To predict the potential health risk to the population attributable to emissions of diesel particulate matter from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 0.5-year construction timeline. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risk is the identification of sources with increased TACs.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP2) software distributed by the CARB; HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source<sup>11</sup>. Assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA’s AMS/EPA Regulatory Model - AERMOD was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

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<sup>9</sup> SJVAPCD GAMAQI, Section 8.5.2, Page 100.

<sup>10</sup> 40 CFR 61.145(c), [https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-61/subpart-M#p-61.145\(c\)](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-61/subpart-M#p-61.145(c))

<sup>11</sup> CARB, 2015, <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/harp/docs2/harp2admrtuserguide.pdf>

For construction health impacts, diesel combustion emissions from diesel on-site construction equipment was modeled as an area source for on-site construction activity on the property. Diesel particulate matter was calculated using CalEEMod for on-site construction equipment. A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for the area source.

Discrete receptors were placed on scattered agricultural houses and businesses within close proximity of the Project site. Receptor grids were placed over the more densely populated areas mostly to the east and south of the Project site. A total of 1,767 discrete off-site receptors analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area.

SJVAPCD-provided, AERMET UStar processed meteorological datasets for the Visalia monitoring station, calendar years 2007 through 2010 was input to AERMOD<sup>12</sup>. This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method (Auer 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2)<sup>11</sup>. ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA). HARP2 site parameters were set for the mandatory minimum pathways of inhalation, soil ingestion, dermal, and mother's milk. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor. A hazard index for acute non-cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

SJVAPCD has set the level of significance for carcinogenic risk at twenty in one million, which is understood as the possibility of causing twenty additional cancer cases in a population of one million people. The level of significance for chronic and acute non-cancer risk is a hazard index of 1.0. All receptors were modeled as residential receptors.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of twenty in one million ( $20 \times 10^{-6}$ ) and 1.0, respectively for the proposed Project. The PMIs, are identified by receptor location and risk, and are provided in **Table 5-3**. The electronic AERMOD and HARP2 output files are provided in Appendix B.

**Table 5-3. Potential Maximum Impacts Predicted by HARP**

	<b>Value</b>	<b>UTM East</b>	<b>UTM North</b>
Excess Cancer Risk	1.87E-06	295701.4	4045184.9
Chronic Hazard Index	3.91E-03	295701.4	4045184.9

As shown above in **Table 5-3**, the maximum predicted cancer risk for the proposed Project is 1.87E-06. The maximum chronic non-cancer hazard index for the proposed Project is 3.91E-03. Since the PMI

<sup>12</sup> SJVAPCD, 2018, [ftp://ftp2.valleyair.org/public/Modeling/Meteorological\\_Data/AERMET%20v18081\\_UStar/Visalia\\_93144/](ftp://ftp2.valleyair.org/public/Modeling/Meteorological_Data/AERMET%20v18081_UStar/Visalia_93144/)

remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be *less than significant* based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors; and
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of TACs from the proposed Project would be less than significant.

### 5.8 Potential Impact on Sensitive Receptors

The new well will be located on Avenue 408, east of Road 128; the new storage tank will be installed south of Florida Avenue and east of Ione Road. Sensitive receptors are defined as areas where young children, chronically ill individuals, the elderly or people who are more sensitive than the general population reside. Schools, hospitals, nursing homes and daycare centers are locations where sensitive receptors would likely reside. **Table 5-4** lists the sensitive receptors within a one-mile radius of the new well. There are no other known schools, hospitals, or nursing homes within a one-mile radius of the new well and tank.

**Table 5-4. Sensitive Receptors Located < 1 Mile from Project**

Receptor	Type of Facility	Distance from Project in Miles	Direction from Project
Cutler Elementary School	K-5 Public	0.25	S
Golden Valley Elementary School	K-5 Public	0.70	NW
Orosi Child Development Center	Daycare	0.85	NW

As discussed in **Section 5.7.2**, the potential health risk attributable to the proposed Project is determined to be *less than significant* and are **not expected** to affect any on-site or off-site receptors, including the sensitive receptors listed above, and is not expected to have any adverse impacts on any known receptor.

## 6. CONCLUSIONS

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Based on the criteria established by the SJVAPCD's GAMAQI, SPAL guidelines, and CEQA Appendix G Environmental Checklist Form, the proposed Project does not meet the minimum standards to require a full Air Quality Impact Analysis. Furthermore, the Project as proposed would not exceed the SJVAPCD's criteria air pollutant emission levels and would generate *less than significant air quality impacts*.

## 7. REFERENCES

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- California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model tm (CalEEMod), version 2020.4.0
- , 2016. "Air Toxic Hot Spots" Facility Prioritization Guidelines, Revised 2016. Final August 2016 <http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf>
- California Air Resources Board (CARB). 2015. Hotspots Analysis and Reporting Program (HARP2) User Guide. <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/harp/docs2/harp2admruserguide.pdf>, accessed September 2022.
- California Environmental Quality Act (CEQA). 2019. (Public Resources Code 21000 - 21189) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).
- , 2019. CEQA, Appendix G – Environmental Checklist Form, Final Text.
- San Joaquin Valley Air Pollution Control District (SJVAPCD). 2020. Small Project Analysis Level (SPAL). November 13, 2020. <http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF>
- , 2015. Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). March 19, 2015. <https://www.valleyair.org/transportation/GAMAQI.pdf>
- , 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. December 17, 2009. <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%202017%202009.pdf>
- , 2022. Air Monitoring Location Map. <http://valleyair.org/aqinfo/air-monitoring.htm>, accessed September 2022.
- , 2017. UStar Meteorological Datasets for Visalia 2007-2010. [https://www.valleyair.org/busind/pto/Tox\\_Resources/AirQualityMonitoring.htm#met\\_data](https://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#met_data)

## **APPENDIX A. CALEEMOD EMISSIONS ESTIMATES OUTPUT FILES**

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QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**QK - Orosi  
Tulare County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	2.88	0.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	51
<b>Climate Zone</b>	3			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	203.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Estimate of Construction area: 20,592 ft of pipe by 6ft wide trench; 2 32ft by 32ft areas for replacement well and new storage tank.

Construction Phase - Estimated Construction Schedule.

Off-road Equipment - Equipment Estimates.

Off-road Equipment -

Off-road Equipment - Equipment Estimates.

Trips and VMT - An estimated 17 truck one way trips required to haul in materials and 17 to remove material. Asbestos removal company located 47.3 miles away.

Demolition -

Vehicle Trips - Estimated 1 maintenance trip per month.

Consumer Products - Construction Run Only

Area Coating -

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Landscape Equipment -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Fleet Mix - Estimated 1 maintenance trip per month.

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	220.00	4.00
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.49	0.33
tblFleetMix	LDT1	0.05	0.33
tblFleetMix	LDT2	0.17	0.34
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	8.5130e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.19	0.00
tblFleetMix	MH	3.9140e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	6.5900e-004	0.00
tblFleetMix	SBUS	1.5410e-003	0.00
tblFleetMix	UBUS	4.7100e-004	0.00
tblLandUse	LotAcreage	0.00	2.88
tblTripsAndVMT	HaulingTripLength	20.00	47.30
tblTripsAndVMT	HaulingTripLength	20.00	47.30
tblTripsAndVMT	HaulingTripNumber	0.00	34.00
tblTripsAndVMT	WorkerTripNumber	0.00	13.00
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblVehicleTrips	WD_TR	0.00	0.23
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**2.0 Emissions Summary**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0114	0.1162	0.0842	2.1000e-004	1.5600e-003	4.8700e-003	6.4400e-003	4.2000e-004	4.5200e-003	4.9400e-003	0.0000	18.3069	18.3069	4.7500e-003	3.9000e-004	18.5417
<b>Maximum</b>	<b>0.0114</b>	<b>0.1162</b>	<b>0.0842</b>	<b>2.1000e-004</b>	<b>1.5600e-003</b>	<b>4.8700e-003</b>	<b>6.4400e-003</b>	<b>4.2000e-004</b>	<b>4.5200e-003</b>	<b>4.9400e-003</b>	<b>0.0000</b>	<b>18.3069</b>	<b>18.3069</b>	<b>4.7500e-003</b>	<b>3.9000e-004</b>	<b>18.5417</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0114	0.1162	0.0842	2.1000e-004	1.5600e-003	4.8700e-003	6.4400e-003	4.2000e-004	4.5200e-003	4.9400e-003	0.0000	18.3069	18.3069	4.7500e-003	3.9000e-004	18.5417
<b>Maximum</b>	<b>0.0114</b>	<b>0.1162</b>	<b>0.0842</b>	<b>2.1000e-004</b>	<b>1.5600e-003</b>	<b>4.8700e-003</b>	<b>6.4400e-003</b>	<b>4.2000e-004</b>	<b>4.5200e-003</b>	<b>4.9400e-003</b>	<b>0.0000</b>	<b>18.3069</b>	<b>18.3069</b>	<b>4.7500e-003</b>	<b>3.9000e-004</b>	<b>18.5417</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	8.0000e-005	9.0000e-005	8.9000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1770	0.1770	1.0000e-005	1.0000e-005	0.1792
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.0000e-005</b>	<b>9.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1770</b>	<b>0.1770</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.1792</b>

QK - Orosi - Tulare County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	8.0000e-005	9.0000e-005	8.9000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1770	0.1770	1.0000e-005	1.0000e-005	0.1792
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.0000e-005</b>	<b>9.0000e-005</b>	<b>9.0000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1770</b>	<b>0.1770</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.1792</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	11/1/2022	11/4/2022	5	4	
2	Trenching	Trenching	11/7/2022	12/5/2022	5	21	

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Bore/Drill Rigs	1	6.00	221	0.50
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Graders	1	6.00	187	0.41
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Trenching	Cranes	1	10.00	231	0.29
Trenching	Tractors/Loaders/Backhoes	2	5.50	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	7	13.00	0.00	0.00	10.80	7.30	47.30	LD_Mix	HDT_Mix	HHDT
Trenching	3	8.00	0.00	34.00	10.80	7.30	47.30	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Building Construction - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6100e-003	0.0310	0.0230	6.0000e-005		1.2300e-003	1.2300e-003		1.1600e-003	1.1600e-003	0.0000	4.6690	4.6690	1.2800e-003	0.0000	4.7010
<b>Total</b>	<b>3.6100e-003</b>	<b>0.0310</b>	<b>0.0230</b>	<b>6.0000e-005</b>		<b>1.2300e-003</b>	<b>1.2300e-003</b>		<b>1.1600e-003</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>4.6690</b>	<b>4.6690</b>	<b>1.2800e-003</b>	<b>0.0000</b>	<b>4.7010</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.8000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1700	0.1700	1.0000e-005	1.0000e-005	0.1719
<b>Total</b>	<b>1.0000e-004</b>	<b>7.0000e-005</b>	<b>7.8000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1700</b>	<b>0.1700</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.1719</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Building Construction - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6100e-003	0.0310	0.0230	6.0000e-005		1.2300e-003	1.2300e-003		1.1600e-003	1.1600e-003	0.0000	4.6690	4.6690	1.2800e-003	0.0000	4.7010
<b>Total</b>	<b>3.6100e-003</b>	<b>0.0310</b>	<b>0.0230</b>	<b>6.0000e-005</b>		<b>1.2300e-003</b>	<b>1.2300e-003</b>		<b>1.1600e-003</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>4.6690</b>	<b>4.6690</b>	<b>1.2800e-003</b>	<b>0.0000</b>	<b>4.7010</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.8000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1700	0.1700	1.0000e-005	1.0000e-005	0.1719
<b>Total</b>	<b>1.0000e-004</b>	<b>7.0000e-005</b>	<b>7.8000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>2.1000e-004</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.1700</b>	<b>0.1700</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.1719</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Trenching - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2700e-003	0.0791	0.0572	1.2000e-004		3.5800e-003	3.5800e-003		3.2900e-003	3.2900e-003	0.0000	10.5994	10.5994	3.4300e-003	0.0000	10.6851
<b>Total</b>	<b>7.2700e-003</b>	<b>0.0791</b>	<b>0.0572</b>	<b>1.2000e-004</b>		<b>3.5800e-003</b>	<b>3.5800e-003</b>		<b>3.2900e-003</b>	<b>3.2900e-003</b>	<b>0.0000</b>	<b>10.5994</b>	<b>10.5994</b>	<b>3.4300e-003</b>	<b>0.0000</b>	<b>10.6851</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	5.7800e-003	8.1000e-004	2.0000e-005	6.9000e-004	6.0000e-005	7.5000e-004	1.9000e-004	6.0000e-005	2.5000e-004	0.0000	2.3195	2.3195	1.0000e-005	3.6000e-004	2.4286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.5200e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5491	0.5491	2.0000e-005	2.0000e-005	0.5553
<b>Total</b>	<b>4.5000e-004</b>	<b>6.0200e-003</b>	<b>3.3300e-003</b>	<b>3.0000e-005</b>	<b>1.3600e-003</b>	<b>6.0000e-005</b>	<b>1.4200e-003</b>	<b>3.7000e-004</b>	<b>6.0000e-005</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>2.8687</b>	<b>2.8687</b>	<b>3.0000e-005</b>	<b>3.8000e-004</b>	<b>2.9838</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Trenching - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.2700e-003	0.0791	0.0572	1.2000e-004		3.5800e-003	3.5800e-003		3.2900e-003	3.2900e-003	0.0000	10.5993	10.5993	3.4300e-003	0.0000	10.6850
<b>Total</b>	<b>7.2700e-003</b>	<b>0.0791</b>	<b>0.0572</b>	<b>1.2000e-004</b>		<b>3.5800e-003</b>	<b>3.5800e-003</b>		<b>3.2900e-003</b>	<b>3.2900e-003</b>	<b>0.0000</b>	<b>10.5993</b>	<b>10.5993</b>	<b>3.4300e-003</b>	<b>0.0000</b>	<b>10.6850</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	5.7800e-003	8.1000e-004	2.0000e-005	6.9000e-004	6.0000e-005	7.5000e-004	1.9000e-004	6.0000e-005	2.5000e-004	0.0000	2.3195	2.3195	1.0000e-005	3.6000e-004	2.4286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.5200e-003	1.0000e-005	6.7000e-004	0.0000	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5491	0.5491	2.0000e-005	2.0000e-005	0.5553
<b>Total</b>	<b>4.5000e-004</b>	<b>6.0200e-003</b>	<b>3.3300e-003</b>	<b>3.0000e-005</b>	<b>1.3600e-003</b>	<b>6.0000e-005</b>	<b>1.4200e-003</b>	<b>3.7000e-004</b>	<b>6.0000e-005</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>2.8687</b>	<b>2.8687</b>	<b>3.0000e-005</b>	<b>3.8000e-004</b>	<b>2.9838</b>



QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

**6.2 Area by SubCategory**

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

---

**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

---

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

QK - Orosi - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

---

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

**User Defined Equipment**

Equipment Type	Number
----------------	--------

**11.0 Vegetation**

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## **APPENDIX B. HEALTH RISK ASSESSMENT MODELING FILES**

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(Electric Files)

**APPENDIX C**

**BIOLOGICAL ANALYSIS REPORT**

# BIOLOGICAL ANALYSIS REPORT

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## TULARE COUNTY EAST OROSI TANK PROJECT



JULY 2020



# BIOLOGICAL ANALYSIS REPORT

## EAST OROSI TANK PROJECT

### **Prepared for:**

Orosi Public Utility District  
12488 Avenue 416  
Orosi, California 93647

### **Consultant:**



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July 2020

**TABLE OF CONTENTS**

*Acronyms and Abbreviations*..... *iii*

*Executive Summary*..... *1*

***SECTION 1 - Introduction***..... ***2***

1.1 - Project Location..... 2

1.2 - Project Description..... 2

1.3 - Purpose, Goals, and Objectives ..... 2

***SECTION 2 - Methods***..... ***5***

2.1 - Definition of Biological Study Area ..... 5

2.2 - Definition of Special-Status Species..... 5

2.3 - Literature Review and Database Analysis..... 5

2.4 - Reconnaissance-Level Field Survey..... 7

***SECTION 3 - Regulatory Setting***..... ***8***

***SECTION 4 - Environmental Setting***..... ***9***

4.1 - Physical Characteristics..... 9

    4.1.1 - Topography ..... 9

    4.1.2 - Climate..... 9

    4.1.3 - Land Use ..... 9

    4.1.4 - Soils..... 10

    4.1.5 - Hydrology..... 12

4.2 - Vegetation and Other Land Cover..... 12

    4.2.1 - Urban ..... 12

    4.2.2 - Evergreen Orchard ..... 15

    4.2.3 - Dryland Grain Crop..... 18

4.3 - General Wildlife Observations ..... 18

***SECTION 5 - Sensitive Resources***..... ***20***

5.1 - Special-Status Species ..... 20

    5.1.1 - Special-Status Plant Species..... 20

    5.1.2 - Special-Status Animal Species..... 21

    5.1.3 - Other Protected Species ..... 23

5.2 - Sensitive Natural Communities ..... 23

    5.2.1 - Sensitive Plant Communities ..... 23

    5.2.2 - Critical Habitats ..... 23

5.3 - Jurisdictional Aquatic Resources ..... 23

5.4 - Wildlife Movement ..... 25

5.5 - Resources Protected by Local Policies and Ordinances..... 25

5.6 - Habitat Conservation Plans.....	25
<b><i>SECTION 6 - Impact Analysis and Avoidance and Minimization Measures .....</i></b>	<b><i>26</i></b>
6.1 - Special-Status Species .....	26
6.1.1 - Project Impacts to Special-Status Plant Species.....	26
6.1.2 - Project Impacts to Special-Status Animal Species.....	26
6.2 - Sensitive Natural Communities and Critical Habitat.....	32
6.3 - Jurisdictional Aquatic Resources .....	32
6.4 - Wildlife Movement .....	33
6.5 - Local Policies and Ordinances.....	33
6.6 - Adopted or Approved Plans.....	33
<b><i>SECTION 7 - Limitations, Assumptions, and Use Reliance .....</i></b>	<b><i>34</i></b>
<b><i>SECTION 8 - References.....</i></b>	<b><i>35</i></b>
<b><i>SECTION 9 - List of Preparers.....</i></b>	<b><i>38</i></b>

**Appendices**

Appendix A	Regulatory Setting
Appendix B	Representative Photographs
Appendix C	Plants and Animals Observed On-Site
Appendix D	Special-Status Species Evaluation Table

**List of Figures**

Figure 1-1 Regional Map, .....	3
Figure 1-2 Project Location Map and Biological Study Area,.....	4
Figure 4-1 Soils within the Project,.....	11
Figure 4-2 NHD and NWI Waters,.....	13
Figure 4-3 FEMA Flood Zones,.....	14
Figure 4-4 Vegetation Communities within the Southern Portion of the BSA,.....	16
Figure 4-5 Vegetation Communities within the Northern Portion of the BSA,.....	17
Figure 4-6 Bird Nest Locations,.....	19
Figure 5-1 Critical Habitat in the Project Vicinity, .....	24

**List of Tables**

Table 4-1 Field Survey Personnel and Timing.....	9
Table 4-2 Habitat Acreages Within the BSA .....	15
Table 5-1 Special Status Species with Potential to Occur On-Site.....	20

## **ACRONYMS AND ABBREVIATIONS**

BAR	Biological Analysis Report
BIOS	Biogeography Information and Observation System
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWHR	California Wildlife Habitat Relationships
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

## EXECUTIVE SUMMARY

QK prepared this Biological Analysis Report to evaluate the potential for sensitive biological resources to be impacted by the East Orosi Tank Project (Project) in Tulare County, California. The Orosi Public Utility District proposes to replace existing water pipelines, construct a new 250,000-gallon water tank, and drill a new drinking water well. Existing water pipelines will be replaced within the community of East Orosi, west along Avenue 416, and south of East Orosi along Avenue 408 and Road 128. The new tank will be installed at the northeast side of East Orosi on undeveloped land between existing residences and an orchard. The new well will be installed adjacent to Avenue 408 near an existing orchard.

Based on the results of agency biological database and literature review, and a reconnaissance level survey conducted on June 24, 2020, four special-status wildlife species were determined to have potential to occur within the Biological Study Area: burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), hoary bat (*Lasiurus cinereus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). Native nesting birds also have the potential to occur within the Biological Study Area. A juvenile Swainson's hawk and nest tree were observed about 0.25 mile east of the Project. These special-status species have the potential to be impacted by the Project. Direct impacts could include direct injury or mortality of individual special-status species and/or their young during the breeding and/or nesting season.

All Project activities will occur on previously developed land (i.e. paved surfaces, agricultural lands), so habitat loss for special-status species will not occur. Indirect impacts are not expected to be substantial because the Project will have a short duration of construction, the timing of the Project could occur outside of the nesting season, and Project activities will not alter the general composition of the Biological Study Area. The Project is not expected to substantially impact any other sensitive resources and would not conflict with local policies or ordinances, or conservation plans.

Because there is a potential for some special-status species to be present as transients and potential impacts to Swainson's hawks and other native birds that may nest on or near the Project site could occur, avoidance and minimization measures are recommended which, when implemented, would reduce Project impacts to biological resources to a less than significant level. This Biological Analysis Report is designed to support evaluation of the Project pursuant to the California Environmental Quality Act, but it could also be used as the basis for additional environmental evaluation and documentation that may be required by other regulations.

## **SECTION 1 - INTRODUCTION**

QK has prepared this Biological Analysis Report (BAR) to evaluate the potential for sensitive biological resources to be impacted by the proposed East Orosi Tank Project (Project). The Orosi Public Utility District proposes to replace the water distribution system for the community of East Orosi and install a new water well and storage tank.

### **1.1 - Project Location**

The Project site is in and near East Orosi, in Tulare County, in California's San Joaquin Valley (Figure 1-1). The Project consists of two locations, a linear water pipeline southwest of East Orosi between Orosi and Cutler, and an irregularly shaped area that overlaps the community of East Orosi and runs to its west (Figure 1-2). The Project locations are surrounded by a mosaic of agricultural development and rural residential properties. The Project is within California United States Geological Survey (USGS) 7.5-minute quadrangle *Orange Cove South*, Sections 8, 9, and 17, Township 16 south, Range 25 east, Mount Diablo Base and Meridian.

### **1.2 - Project Description**

The proposed Project will have four components: (1) installation of a new well located in the OPUD; (2) installation of a 250,000-gallon storage tank located in the EOCSD; (3) replacement of the old asbestos concrete-covered distribution pipeline which is also located in the EOCSD; and (4) connection of the new storage tank and new well to the new and existing pipelines.

In addition, the proposed Project proposes to replace the existing meter boxes, install metered service connections and new fire hydrants, and abandon the existing well located north of Avenue 416 and east of Road 136. The proposed Project will provide clean, potable water to the residents of East Orosi. The proposed Project will allow the EOCSD to meet the current water demand. It will not increase water demand or induce growth in the community.

### **1.3 - Purpose, Goals, and Objectives**

The purpose of this BAR is to identify where sensitive biological resources may occur within and near the Project areas, determine how those resources might be impacted by the proposed Project, and recommend avoidance, minimization, and mitigation measures to reduce potential impacts to a less than significant level. This BAR is designed to support evaluation of the Project pursuant to the California Environmental Quality Act (CEQA), but it could also be used as the basis for any additional environmental evaluation and documentation that may be required by other regulations or agencies, such as the United States Fish and Wildlife Service (USFWS).





## SECTION 2 - METHODS

### 2.1 - Definition of Biological Study Area

The Biological Study Area (BSA) used for this BAR includes everything within the limits of the Project boundary along with a 250-foot buffer (see Figure 1-2). A 0.5-mile buffer was used for the Swainson's hawk nest survey.

### 2.2 - Definition of Special-Status Species

In this report, special-status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the Project,
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA),
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW),
- Other species included on the CDFW's Special Animals List,
- Plant species with a California Rare Plant Rank (CRPR) in categories 1 or 2,
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **No Potential:** Habitat on and adjacent to the Project is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees).
- **Potential:** Conditions on the Project may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Negative survey results do not exclude the potential for a species to occur.
- **Present.** Species or diagnostic sign of the species was observed on the Project or has been recorded (e.g., databases, other reports) on the Project recently (within the last 5 years).

### 2.3 - Literature Review and Database Analysis

The following sources were reviewed for information on sensitive biological resources in the Project vicinity:

- CDFW's California Natural Diversity Database (CNDDDB; CDFW 2020a; CDFW 2020b),
- CDFW's Biogeographic Information and Observation System (BIOS; CDFW 2020c),

- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988),
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2020),
- Calflora (Calflora 2020),
- USFWS Information for Planning and Consultation (IPaC) system (USFWS 2020a),
- USFWS Critical Habitat Mapper (USFWS 2020b),
- USFWS National Wetlands Inventory (NWI; USFWS 2020c),
- USGS National Hydrography Dataset (NHD; USGS 2020),
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2020),
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2020a),
- NRCS Lists of Hydric Soils (NRCS 2020b), and
- Current and historical aerial imagery (Google LLC 2020).

For each of these data sources, the search was focused on the California USGS 7.5-minute quadrangle *Orange Cove South* in which the Project is located, plus the surrounding eight quadrangles: *Wahtoke, Orange Cove North, Tucker Mountain, Stokes Mountain, Ivanhoe, Monson, Traver,* and *Reedley*. For the CNDDDB, a 10-mile search radius was used (CDFW 2020a, 2020b).

The CNDDDB provides element-specific spatial information on individually documented occurrences of special-status species and sensitive natural communities. Some of the information available for review in the CNDDDB is still undergoing review by the CDFW; these records are identified as unprocessed data. The CNPS database provides similar information as the CNDDDB, but at a much lower spatial resolution. Much of this information in these databases is obtained opportunistically and is often focused on protected lands or on lands where development has been proposed. Neither database represents a comprehensive survey for special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility that a special-status resource could be present. The NWI and Web Soil Survey provide comprehensive data, but at a low-resolution requiring confirmation in the field. The IPaC system provides a list of federally listed and candidate species with potential to occur on the Project, even if they have not been documented nearby.

The results of the database inquiries were reviewed to develop a list of sensitive biological resources and special-status species that may be present within vicinity of the Project. This list of special-status species was then evaluated against the existing conditions observed during the reconnaissance site visit of the BSA to determine which species have the potential to occur, and then the potential for impacts to those species and other resources as a result of implementation of the Project was evaluated.

## ***2.4 - Reconnaissance-Level Field Survey***

A reconnaissance survey of the BSA was conducted on June 24, 2020, by QK Associate Environmental Scientists Shannon Gleason, Laura Schneider, and Eric Madueno. The survey consisted of pedestrian transects spaced approximately 50 feet apart throughout the BSA, where feasible. Portions of the 250-foot buffer were inaccessible because it overlapped with private properties, and these areas were surveyed visually with the aid of binoculars to gather a representative inventory of the plant and wildlife species present.

In addition to the pedestrian survey of the BSA, a windshield survey was conducted within 0.5-mile of the Project to search for Swainson's hawk and other raptor nests. QK biologists drove all public roads within the 0.5-mile buffer, scanning for raptor nests with the aid of binoculars and spotting scopes. When raptors or potential raptor nests were observed, the raptor and/or nest was scoped to determine species and nest activity level.

General tasks completed during the survey included developing an inventory of plant and wildlife species observed, characterizing vegetation associations, evaluating habitat conditions, and determining the presence of wetlands and waters within the BSA. The potential for federal- and State- listed and other special-status species to occur on and near the Project were assessed as were the potential for migratory birds and raptors to nest on and near the Project. All locational data was recorded using ESRI Collector for ArcGIS software installed on an iPad and site conditions were documented with representative photographs.

### **SECTION 3 - REGULATORY SETTING**

Regulated or sensitive resources that were studied and analyzed included special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement areas, and locally protected resources such as protected trees. Regulatory authority over biological resources is shared by federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, Tulare County).

Potential impacts to biological resources were analyzed based on the following list of statutes. Summaries of these statutes are provided in Appendix A.

- CEQA
- National Environmental Policy Act (NEPA)
- FESA
- CESA
- Federal Clean Water Act
- California Fish and Game Code
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Tulare County General Plan 2030 Update

## SECTION 4 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project and describes existing baseline conditions. The environmental setting of the BSA was obtained from various sources of literature, databases, and aerial photographs. Site conditions were verified and updated during the site reconnaissance survey conducted by QK biologists (Table 4-1).

**Table 4-1**  
**Field Survey Personnel and Timing**

Date	Personnel	Time	Weather Conditions	Temperature
June 24, 2020	Shannon Gleason Laura Schneider Eric Madueno	0830 - 1150	Partly cloudy	86 – 94 °F

### **4.1 - Physical Characteristics**

The Project is in a region dominated by agriculture and urban development on the eastern San Joaquin Valley floor, west of the Sierra Nevada Mountains. The BSA is situated among residential development and agricultural fields and olive and citrus orchards within and southwest of the community of East Orosi. Land within the Project boundary has been developed primarily for urban use. Physical characteristics of the BSA are described below. Representative photographs of the BSA are included in Appendix B.

#### **4.1.1 - TOPOGRAPHY**

The Project is located on the floor of the San Joaquin Valley, west of the Sierra Nevada foothills. The topography is flat, with an elevation range of approximately 365 to 400 feet above mean sea level.

#### **4.1.2 - CLIMATE**

The region in which the BSA is located is characterized by a Mediterranean climate of hot summers and wet, mild winters. Average high temperatures range from 55 degrees Fahrenheit (°F) in January to 99 °F in July, and it is not uncommon for temperatures to exceed 100 °F during the summer (WRCC 2020). Average low temperatures range from 35 °F in January to 62 °F in July. Precipitation occurs primarily as rain, most of which falls between November and April. Precipitation may also occur as dense fog during the winter known as Tule Fog. Rain rarely falls during the summer months.

#### **4.1.3 - LAND USE**

Lands surrounding the Project vicinity are a mix of agricultural (both plowed fields and orchards) and urban development. Land uses within the Project boundaries are primarily existing roads and associated rights of way, with several small areas within urban and

agricultural habitat where the new water well and storage tank will be installed (see Figure 1-2). New water pipelines will be laid along and within existing roads in East Orosi, which provide access to residential homesites.

#### 4.1.4 - SOILS

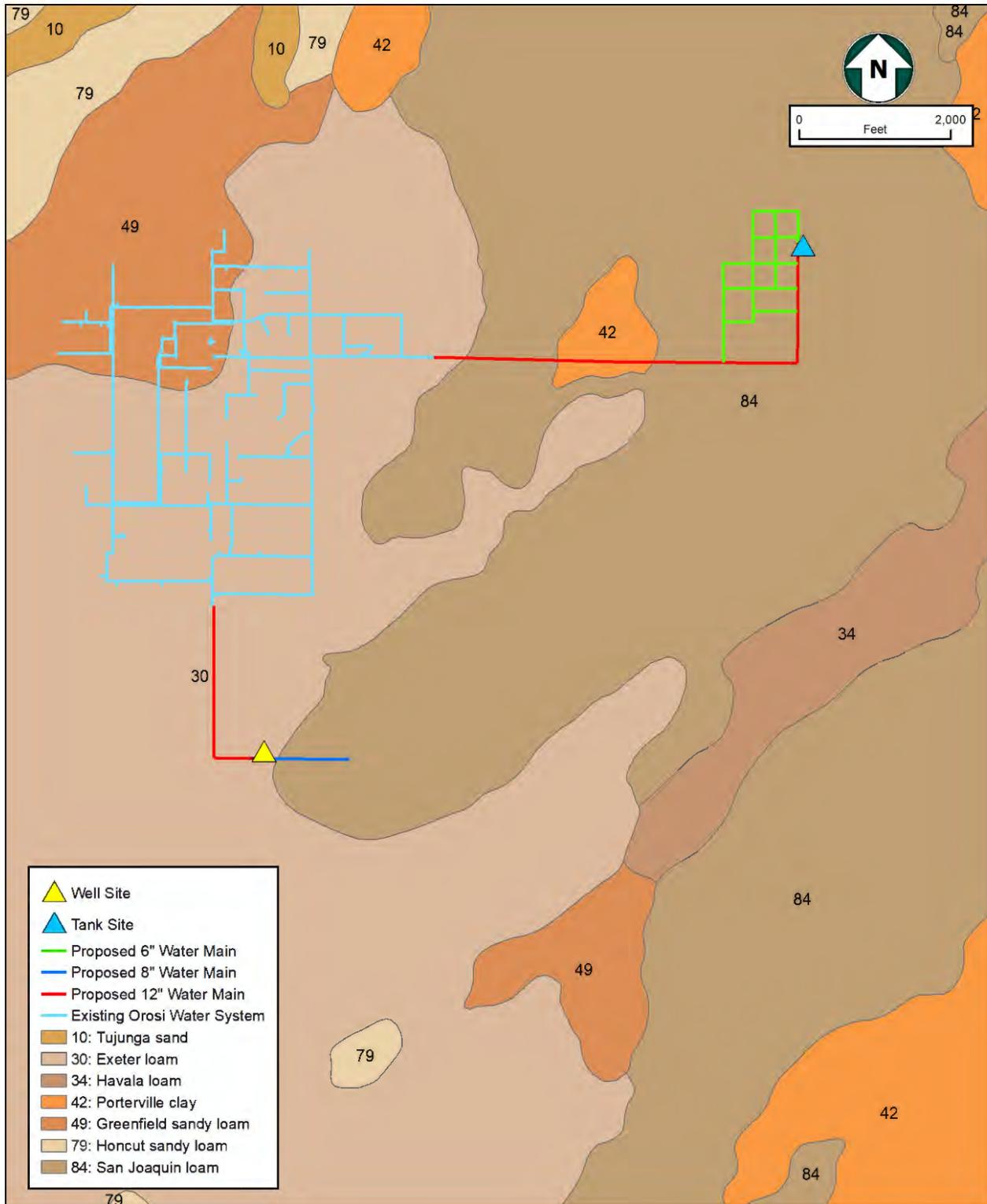
The BSA is underlain by three soil types: Exeter loam, San Joaquin loam, and Porterville clay (Figure 4-1).

The Exeter series consists of moderately deep soils to a duripan, well drained soils that formed in alluvium mainly from granitic sources. Exeter soils are on alluvial fans and stream terraces and have slopes of 0 to 9 percent (NRCS 2020a). This soil type is on hummocky, undulating to gently rolling alluvial fans and stream terraces at elevations of 20 to 700 feet. Slopes range from 0 to 9 percent. The soils were formed in alluvium mainly from granitic sources. In most areas the hummocky relief has been smoothed by leveling. The climate is dry sub-humid with hot, dry summers and cool, moist winters. This soil type is used for irrigated cropland consisting mostly of oranges (*Citrus X sinensis*), olives (*Olea europaea*), and deciduous orchards, vineyards, and row crops. It is also used for dairy and cattle production and building site development. Vegetation in uncultivated areas is mainly annual grasses and forbs.

The San Joaquin series consists of well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources and is moderately deep to a duripan (NRCS 2020a). This soil type occurs on undulating low terraces with slopes of 0 to 9 percent. San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. This series is typically found in a climate that is dry with hot dry summers and cool moist and foggy winters. Some areas are subject to rare or occasional flooding. It is used for cropland and livestock grazing.

Porterville Clay Series consists of deep, well drained soils that formed in fine textured alluvium material derived from basic and metabasic igneous rock (NRCS 2020a). These soils are found on fans and foothills. Slopes range from 0 to 15 percent at elevations from less than 2,000 feet in the lower valleys and from 400 to 4,000 feet in the higher valleys. The climate is semiarid, mesothermal with hot, dry summers and cool, moist winters. Mean annual precipitation is 9 to 20 inches and mean annual air temperature is between 57 and 62 °F. Porterville clay soils are used primarily for range pasture or cultivation of oranges (*Citrus x sinensis*), lemons (*Citrus x limon*), olives (*Olea europaea*), figs (*Ficus carica*), and some grapes (*Vitis* sp.). Some areas are used for dry farmed hay or grain or as rangeland. Native vegetation is annual grasses, burclover, herbs and scattered shrubs.

In central Tulare County, where the Project is located, Exeter loam, San Joaquin loam, and Porterville Clay soils may be classified as hydric under Category 2, 3, or 4, depending on slope and site-specific conditions, typically within depressions and/or alluvial fans (NRCS 2020b).



**Figure 4-1**  
**Soils within the Project,**  
**East Orosi Tank Project, Tulare County, California**



During the site survey, none of the soils within the BSA exhibited any field indicators characteristic of hydric soil. At the time of the site survey, ponded water was present in the Alta East Branch Canal where it passes through the Project beneath Avenue 416, but there was no ordinary high water mark or hydrophytic vegetation indicating any hydric status of the underlying soil.

#### **4.1.5 - HYDROLOGY**

Based on the review of the NWI and NHD, and conditions during the site survey, the BSA does not overlap any jurisdictional wetlands, although it is intersected by the Alta East Branch Canal, which is an earthen ditch where it runs beneath Avenue 416 just south of East Orosi (Figure 4-2; USGS 2020, USFWS 2020c). The Alta East Branch Canal runs along the west and south sides of East Orosi and, at the time of the site survey, contained stagnant water where it passes through the pipeline route portion of the Project (see Photos 7 and 8 in Appendix B). There is a bridge on Avenue 416 where the road crosses the canal that the existing water main pipeline is secured to the bridge. The Alta East Branch Canal channel is earthen, and vegetation along the banks was ruderal. No hydrophytic vegetation or ordinary high water mark was observed. Historical imagery shows that this canal periodically contains flowing water (Google, LLC 2020).

Other aquatic resources identified by the NWI and NHD in the vicinity of the Project are man-made, including retention basins and other agricultural canals.

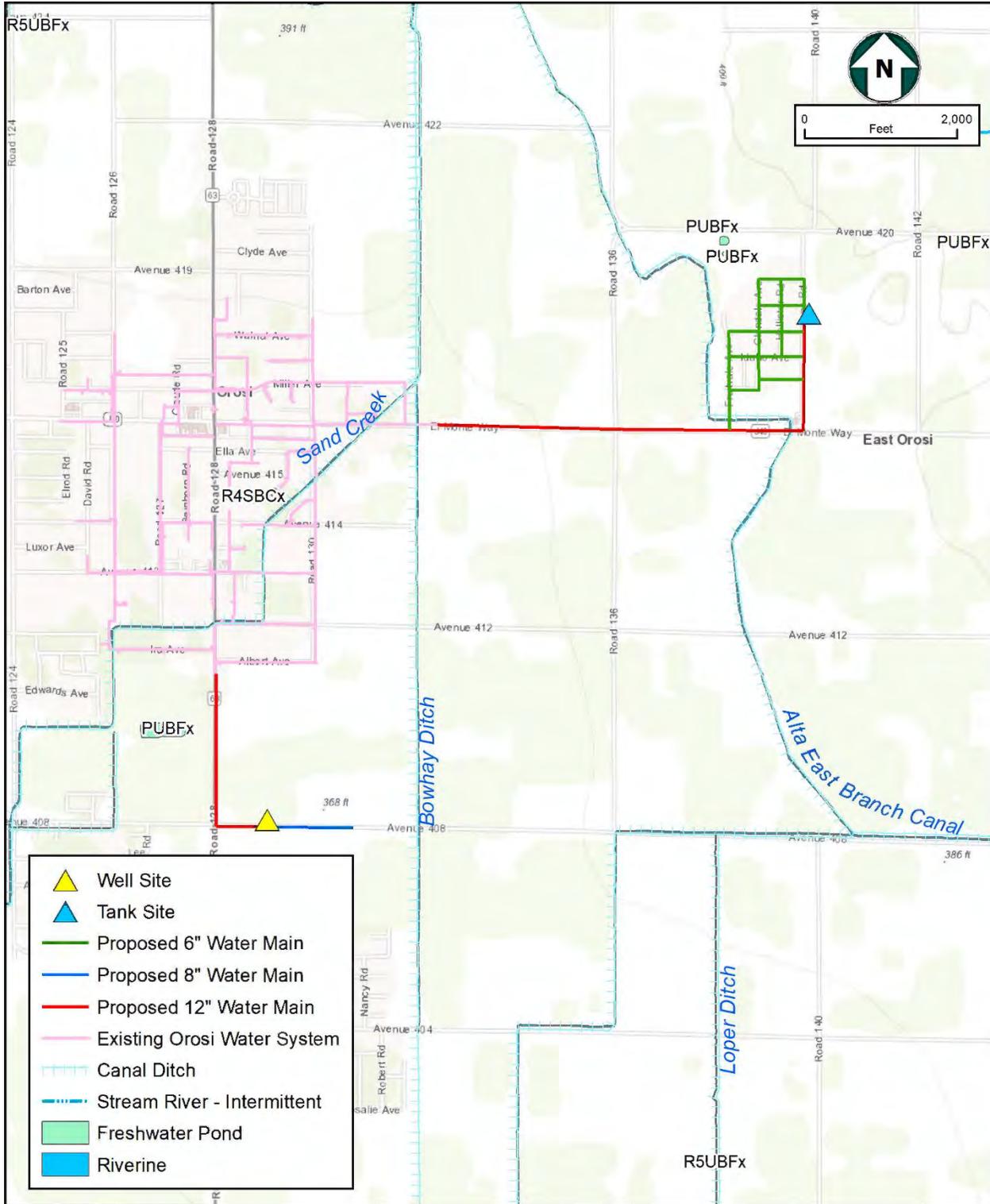
The Project is on land defined by FEMA as 0.2% Annual Chance Flood Hazard, 1% Annual Chance Flood Hazard, and Minimal Flood Hazard (FEMA 2020; Figure 4-3). The community of East Orosi overlaps all three flood zones. Most of the linear aspects of the Project overlaps the 0.2% Annual Chance Flood Hazard zone.

## **4.2 - Vegetation and Other Land Cover**

Three habitat types occur within the BSA, which include urban, evergreen orchard, and dryland grain crops (Figures 4-4 and 4-5). Habitats on-site were described in the context of *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988) and cross-referenced to the CWHR, where appropriate. A complete list of plant species observed is included in Appendix C. A table representative of the habitat types and acreages of each type observed within the BSA during the site visit is provided in Table 4-2 below.

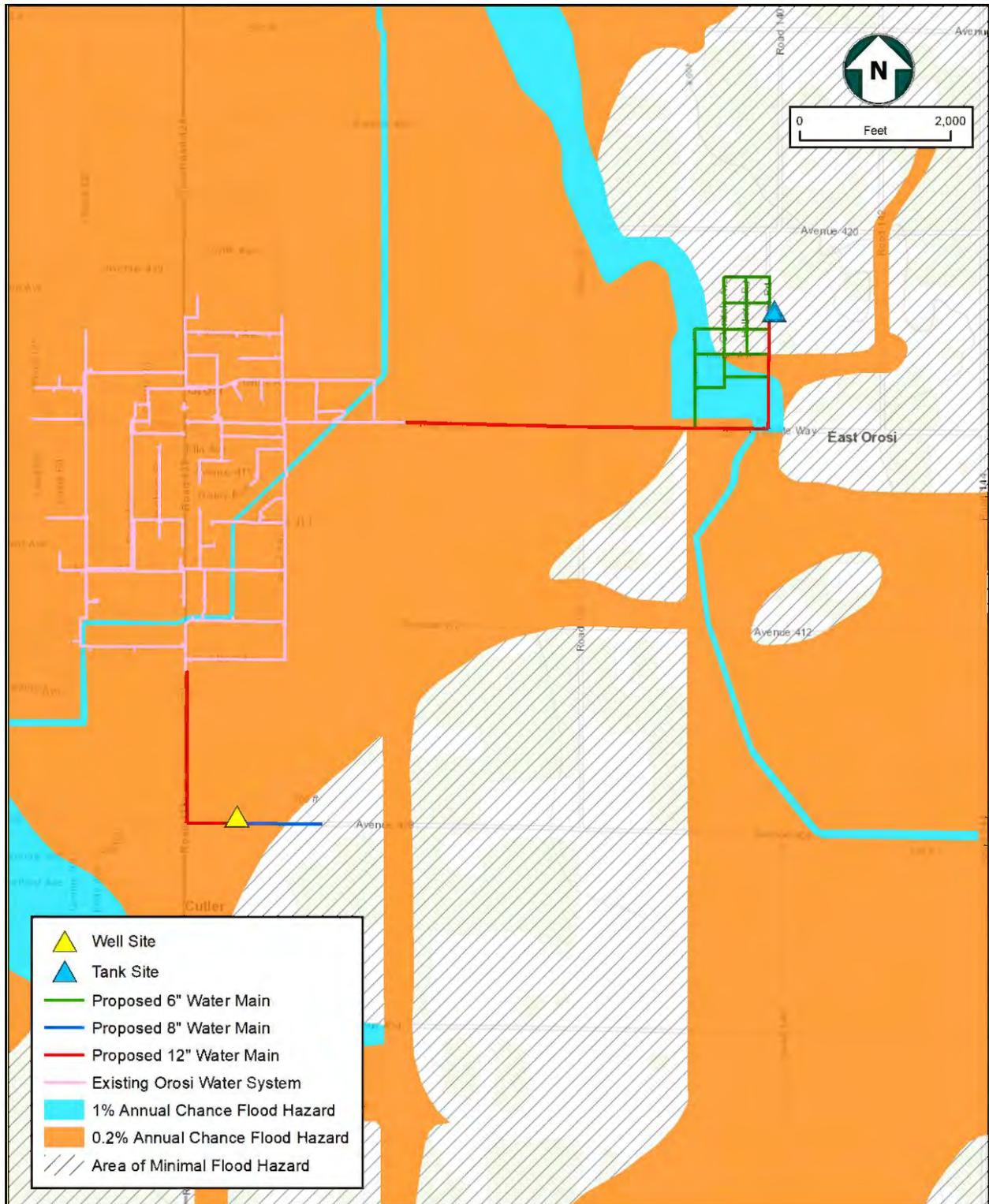
### **4.2.1 - URBAN**

Mayer and Laudenslayer (Mayer and Laudenslayer, 1988) describe urban habitat as variable with five vegetative structures defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. These structures vary based on the associated urban development. Vegetation commonly associated with this habitat includes ornamental herbs (grass lawns, weeds, and flowers), shrubs, hedges, and trees, as well as ruderal species. Species composition within urban habitat varies with the type of ornamental plantings.



**Figure 4-2**  
**NHD and NWI Waters,**  
**East Orosi Tank Project, Tulare County, California**





**Figure 4-3**  
**FEMA Flood Zones,**  
**East Orosi Tank Project, Tulare County, California**



**Table 4-2**  
**Habitat Acreages Within the BSA**

Habitat Type	Acreage
Urban	106.91
Evergreen Orchard	42.95
Dryland Grain Crop	20.40

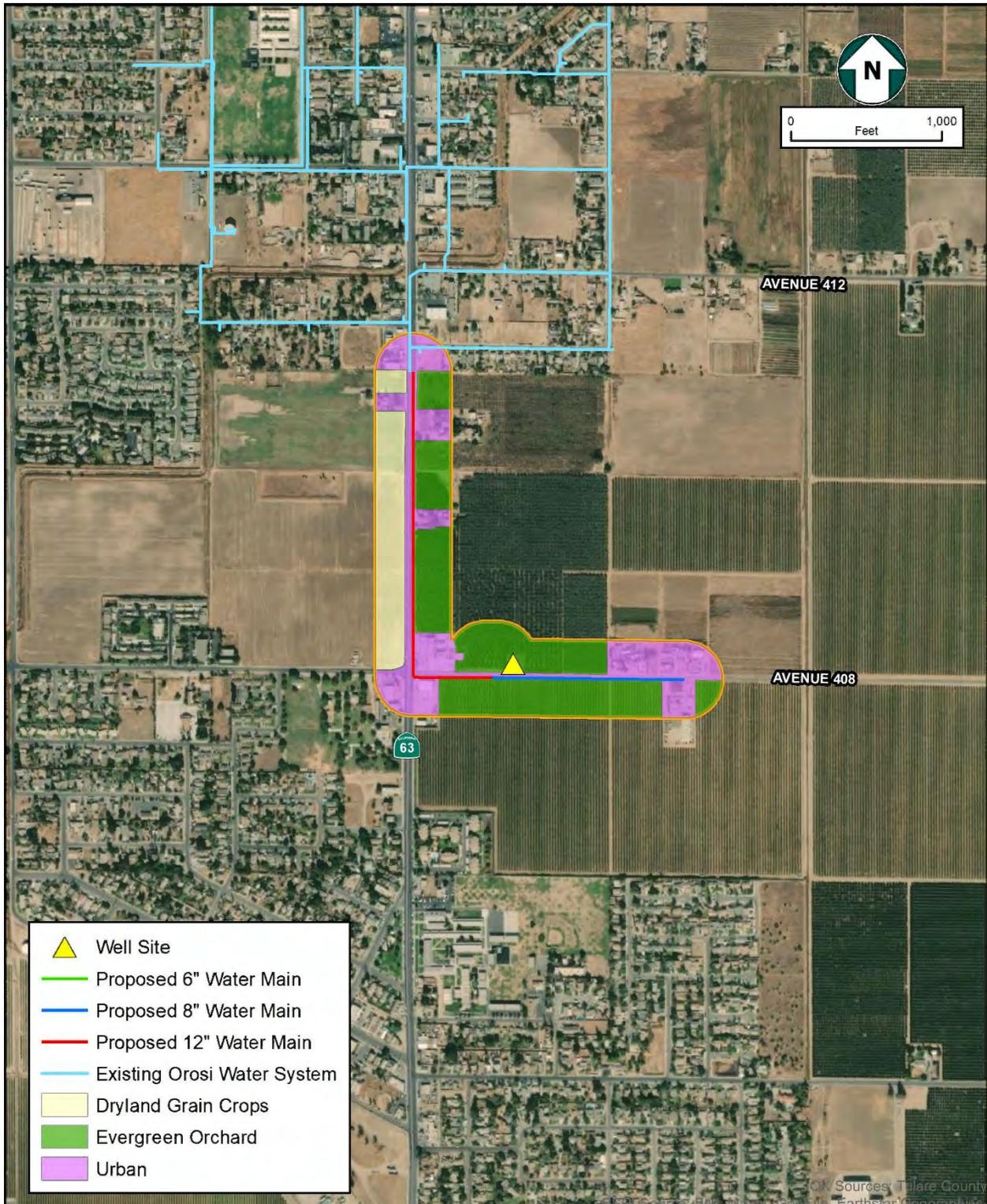
Much of the BSA is comprised of urban habitat, which includes paved roads and residences (Figures 4-4 and 4-5). The Project vicinity contains paved roads and sidewalks and compacted dirt road shoulders with ruderal vegetation. Staging areas for the Project have not yet been designated but will likely be placed on existing disturbed areas.

The residences in the Project buffer are planted with a variety of ornamental plant species, including red gum (*Eucalyptus camaldulensis*), Peruvian pepper tree (*Schinus molle*), and bougainvillea (*Bougainvillea spectabilis*). Common plants in the urban habitat of the BSA are ruderal and include Bermuda grass (*Cynodon dactylon*), johnsongrass (*Sorghum halepense*), horseweed (*Erigeron canadensis*), and prickly lettuce (*Lactuca serriola*). The northeastern corner of the Project, proposed as the location for the new water tank, is vegetated with such ruderal vegetation. The Alta East Branch Canal is an agricultural canal that intersects the Project and it also supported only ruderal vegetation characteristic of the urban areas of the Project.

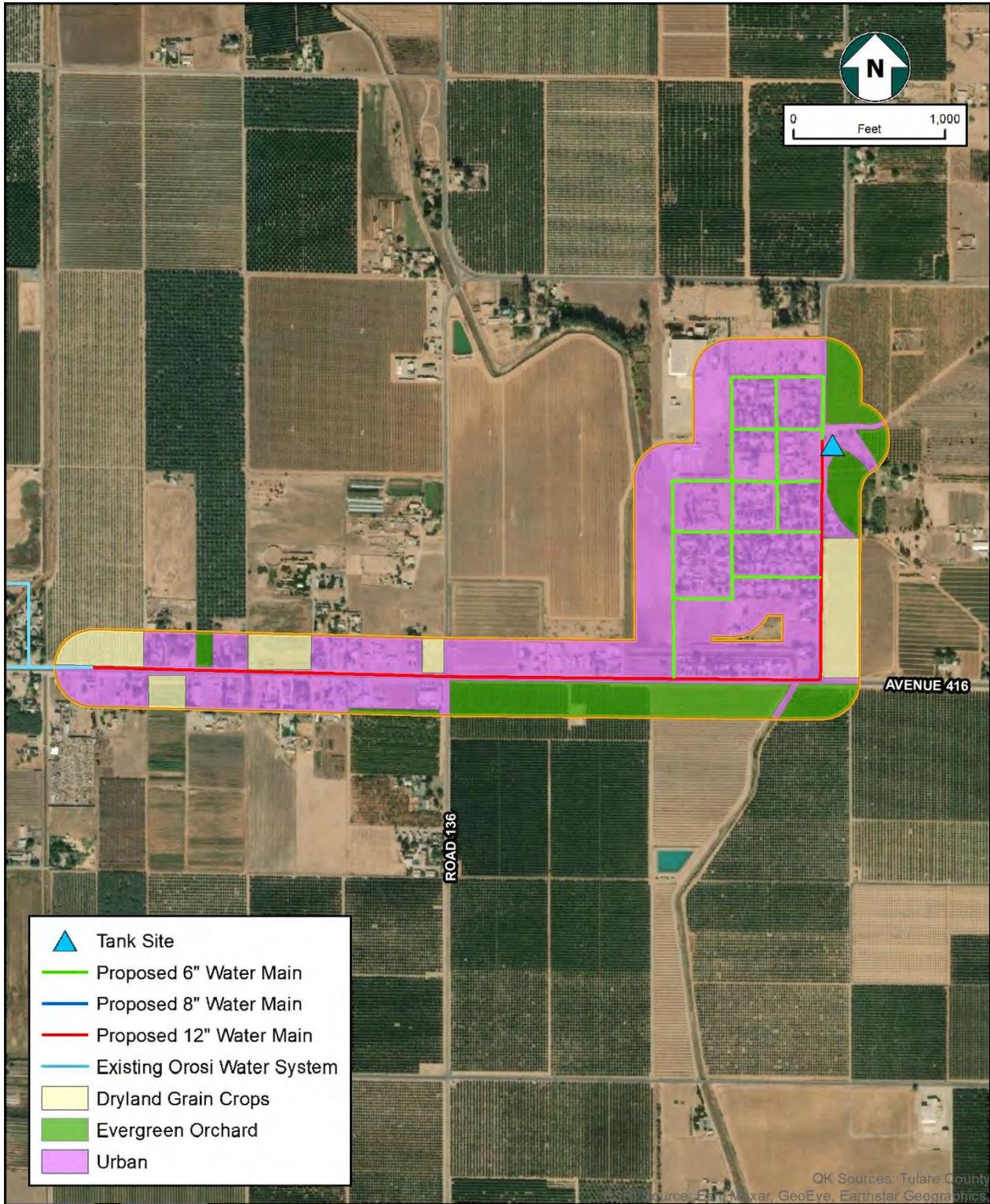
#### **4.2.2 - EVERGREEN ORCHARD**

This developed habitat typically consists of single species evergreen trees. They are usually low, bushy trees with an open understory to facilitate harvest (Mayer and Laudenslayer 1988). Typical species include avocados, dates, olives, and citrus trees. Evergreen orchards are planted on deep fertile soils that once supported productive and diverse habitats. Some species of birds and mammals have adapted to this habitat and have become “agricultural pests,” resulting in efforts to reduce crop losses using fencing, sound guns, and other management techniques. Evergreen orchards can be found on flat alluvial soils in the valley floors, in rolling foothill areas, or on relatively steep slopes. All are irrigated and planted in warmer parts of California due to low frost tolerance.

Evergreen orchard habitat is present in the buffer areas of the Project (see Figures 4-4 and 4-5) and includes olive (*Olea europaea*) and orange (*Citrus x sinensis*) groves. Ruderal vegetation grows at the edges of these groves alongside the roadsides, with species like red brome (*Bromus madritensis ssp. rubens*) and cheeseweed mallow (*Malva parviflora*). The proposed location for the new well is at the edge of an evergreen (olive) orchard on the southwest side of the Project site.



 **Figure 4-4**  
**Vegetation Communities within the Southern Portion of the BSA,  
East Orosi Tank Project, Tulare County, California**



**Figure 4-5**  
**Vegetation Communities within the Northern Portion of the BSA, East Orosi Tank Project, Tulare County, California**

### 4.2.3 - DRYLAND GRAIN CROP

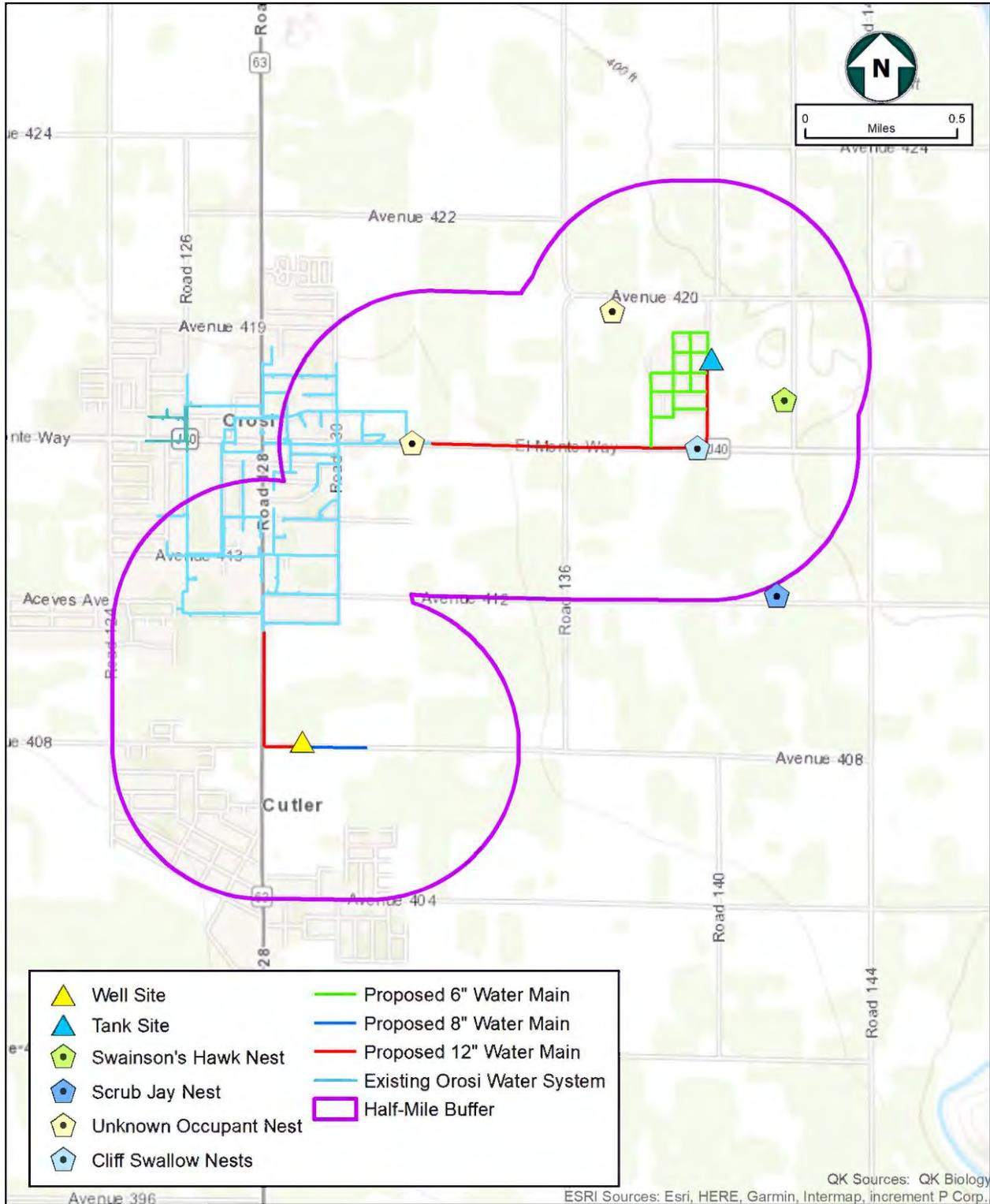
Dryland grain crop is described by Mayer & Laudenslayer (1988) as vegetation in the dryland (non-irrigated) grains and seed crops habitat including seed producing annual grasses, primarily barely, cereal rye, oats, and wheat. Usually grain and seed crops are planted in the fall and harvested the following spring. If fallowed, volunteer native or naturalized herbaceous species may grow. Dryland grain crops occur in association with orchards, vineyards, pasture, urban, and other wildlife habitats such as riparian, chaparral, wetlands, desert, and herbaceous types.

Dryland grain crop is present in some locations in the buffer of the Project (see figures 4-4 and 4-5). There were no actively cultivated crop fields during the survey, but there were fallowed fields that supported ruderal species like red brome, prickly lettuce, and pigweed amaranth (*Amaranthus albus*).

### 4.3 - General Wildlife Observations

Wildlife observations within the BSA were typical of rural residential and agricultural habitats. Thirteen (13) bird species were observed during the survey, including California scrub jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), and mourning dove (*Zenaida macroura*). Domesticated animals like chickens (*Gallus gallus*) and dogs (*Canis lupus familiaris*) were also common. Pondered water within the Alta East Branch Canal contained American bullfrogs (*Lithobates catesbeianus*), but no other aquatic species were observed. A few ground squirrels (*Otospermophilus beecheyi*) were observed in a fallowed field on the west side of the southern Project location.

Three hawk species in genus *Buteo* were observed during the survey. A juvenile Swainson's hawk (*B. swainsoni*), a species listed as Threatened under CESA, was observed perched near a nest in a large eucalyptus tree near a residence approximately 0.25 mile east of the Project (Figure 4-6, Photograph 9 in Appendix B). Other hawk species observed during the survey include red-tailed hawk (*B. jamaicensis*) and red-shouldered hawk (*B. lineatus*). These species are not listed under federal or State Endangered Species Acts; no nests for these species were in the Project vicinity. A California scrub jay nest was found east of the Project, cliff swallow nests (*Petrochelidon pyrrhonota*) were attached to the underside of the bridge over the Alta East Branch Canal, within the Project area, and two unoccupied stick nests were observed north and west of the Project (Figure 4-6, Photograph 8 in Appendix B). A complete list of wildlife observed is included in Appendix C.



**Figure 4-6**  
**Bird Nest Locations,**  
**East Orosi Tank Project, Tulare County, California**



## SECTION 5 - SENSITIVE RESOURCES

Local, State, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed on the Project site and evaluates the potential for the Project site to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB, IPaC, and CNPS, species occurrence records from other sites in the vicinity of the survey area, and the results of the survey of the Project site. All species identified in the database search were evaluated based upon suitable habitat criteria, historical presence, and expected geographic ranges. A complete list of species evaluated for this Project is included in Appendix D.

### 5.1 - Special-Status Species

Table 5-1 presents the list of special-status plant and animal species determined to have potential to occur on-site and identifies if the Project may affect the species and threaten the viability of the species population. Each species is further discussed in the subsections below.

**Table 5-1**  
**Special Status Species with Potential to Occur On-Site**

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
<b>Birds</b>			
<i>Athene cunicularia</i> western burrowing owl	-/- -/SSC	Yes	No
<i>Buteo swainsoni</i> Swainson’s hawk	-/ST -/-	Yes	No
<b>Mammals</b>			
<i>Lasiurus cinereus</i> Hoary bat	-/- -/SSC	No	No
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST -/-	Yes	No

#### 5.1.1 - SPECIAL-STATUS PLANT SPECIES

The literature and database review identified 14 special-status plant species known to occur or with potential to occur within the vicinity of the Project (See evaluation table in Appendix D). Of those species, none were determined to have potential to occur on-site based upon existing site conditions.

### 5.1.2 - SPECIAL-STATUS ANIMAL SPECIES

The literature and database review identified 20 special-status animal species known to occur or with the potential to occur in the vicinity of the Project (see evaluation table in Appendix D). Of those species, four were determined to have the potential to occur on-site:

#### **Western Burrowing Owl**

*ATHENE CUNICULARIA*

Status: Species of Special Concern

The western burrowing owl is a broadly distributed, small ground-dwelling owl that is found at lower elevations throughout western North America. Typically, this species is found in a variety of habitat types including grasslands, deserts, or other open habitats where food resources are available and contain treeless areas with low vegetation cover and gently sloping terrain (Rodewald 2015).

Burrowing owls utilize earthen burrows, typically relying on other fossorial mammals to construct their burrows (USFWS 1998) such as California ground squirrels or American badger (*Taxidea taxus*). They are associated with California ground squirrels (Winchell 1994). They use a burrow throughout the year for temperature regulation, off-spring rearing, shelter, and escape from predators. While burrows are most often earthen, they have been documented using atypical burrows such as pipes, culverts, and other man-made structures as burrows, most often as shelter (Shuford and Gardali 2008). Burrowing owls can have several burrows near to each other that they may use frequently in case of predators in the vicinity.

The nearest CNDDDB occurrence (EONDX 69905) documented two owl burrows with two adult individuals. This 2006 record is from approximately 4.2 miles southeast of the Project site. There is suitable habitat in some of the fallow fields within the BSA, and several California ground squirrel burrows were observed at the south end of the Project site. No burrowing owls or diagnostic signs of burrowing owls were observed during the survey but there is some potential for burrowing owls to be present from time to time as transient foragers or even to become established on-the Project.

#### **Swainson's Hawk**

*BUTEO SWAINSONI*

Status: State Threatened

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout California's Central Valley and Antelope Valley (Bechard et al. 2010, Zeiner et al. 1988). Some hawks may be resident, especially in the southern portion of their range, while others may migrate between winter and breeding habitats. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dry-land grain fields nearby for foraging but have been known to nest in large eucalyptus trees along heavily traveled free-way corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural

habitats, primarily for rodents. Swainson's hawks do exhibit a moderate to high nest site fidelity for successful nest sites.

A juvenile Swainson's hawk was observed perched near a large nest in a eucalyptus tree during the survey, approximately 0.25 mile east of the Project site (see Figure 4-6). It is likely that the nest was used to raise the juvenile hawk, and this nest could be reused in future breeding seasons because this species has a high fidelity to successful nest sites. The nearest CNDDDB occurrence (EONDX 87267) is approximately 8.5 miles southwest of the Project and is from 2008. The Project and surrounding area support numerous large trees suitable for Swainson's hawk nesting, and they may forage in agricultural fields and grasslands surrounding the Project site.

### **Hoary Bat**

*LASIURUS CINEREUS*

Status: None; included on CDFW's Special Animals List

Hoary bats can be found anywhere in California from sea level to 13,200 feet (Zeiner et al. 1988). They winter on the coast and in southern California and breed inland north of their winter range. Hoary bats roosts in dense foliage on medium to large trees, usually along habitat edges or in habitat mosaics. A water sources is required. Their maternity season is from May through July, with nursery roosts occurring in woodlands and forests. They often forage with other bat species.

Within the BSA, suitable roosting habitat is present where large dense trees are present, typically associated with rural residences. The nearest CNDDDB occurrence is from 1943 and is approximately 4.8 miles west of the Project (EONDX 69375). The species is presumed extant in the area.

### **San Joaquin Kit Fox**

*VULPES MACROTIS MUTICA*

Status: Federally Endangered and State Threatened

The San Joaquin kit fox is a subspecies of kit fox that is endemic to the Central Valley of California USFWS 1998. They are found primarily in the San Joaquin Valley, Carrizo Plain, and Cuyama Valley, as well as other small valleys in the western foothills of the Central Valley. They are only found west of the Sierra Nevada crest. They occupy arid to semi-arid grasslands, open shrublands, savannahs, and grazed lands with loose-textured soils. San Joaquin kit fox are well-established in some urban areas and are highly adaptable to human-altered landscapes. They generally avoid intensively maintained agricultural land. They use subterranean dens year-round for shelter and pup-rearing and are nocturnally active but may be visible above ground near their dens during the day, particularly in the spring. They feed primarily on small mammals, but will consume a variety of prey, and will scavenge for human food.

The nearest CNDDDB occurrence record (EONDX 67545) is approximately 4 miles southwest of the Project and documents multiple sightings at a den between 1972 and 1975. The

observations were in an undeveloped field within a mosaic of cropland and some residential and agricultural structures.

No San Joaquin kit fox dens or diagnostic sign of the species was observed within the BSA during the survey. There is suitable foraging habitat in the agricultural and urban habitats surrounding the Project and the species is very adaptable to urban environments. This species may occur within the BSA and Project site as a transient forager from time to time.

### **5.1.3 - OTHER PROTECTED SPECIES**

#### ***Nesting and Migratory Birds***

Several active and inactive bird nests were observed during the survey, including those of cliff swallows and California scrub jay. All habitat within the BSA is capable of supporting nesting native bird species, which are protected by the federal MBTA and the California Fish and Game Code. Various species of native birds will construct nests in a variety of habitats and structures, and nests may be found in trees or shrubs, in man-made structures, and directly on the ground.

## **5.2 - Sensitive Natural Communities**

### **5.2.1 - SENSITIVE PLANT COMMUNITIES**

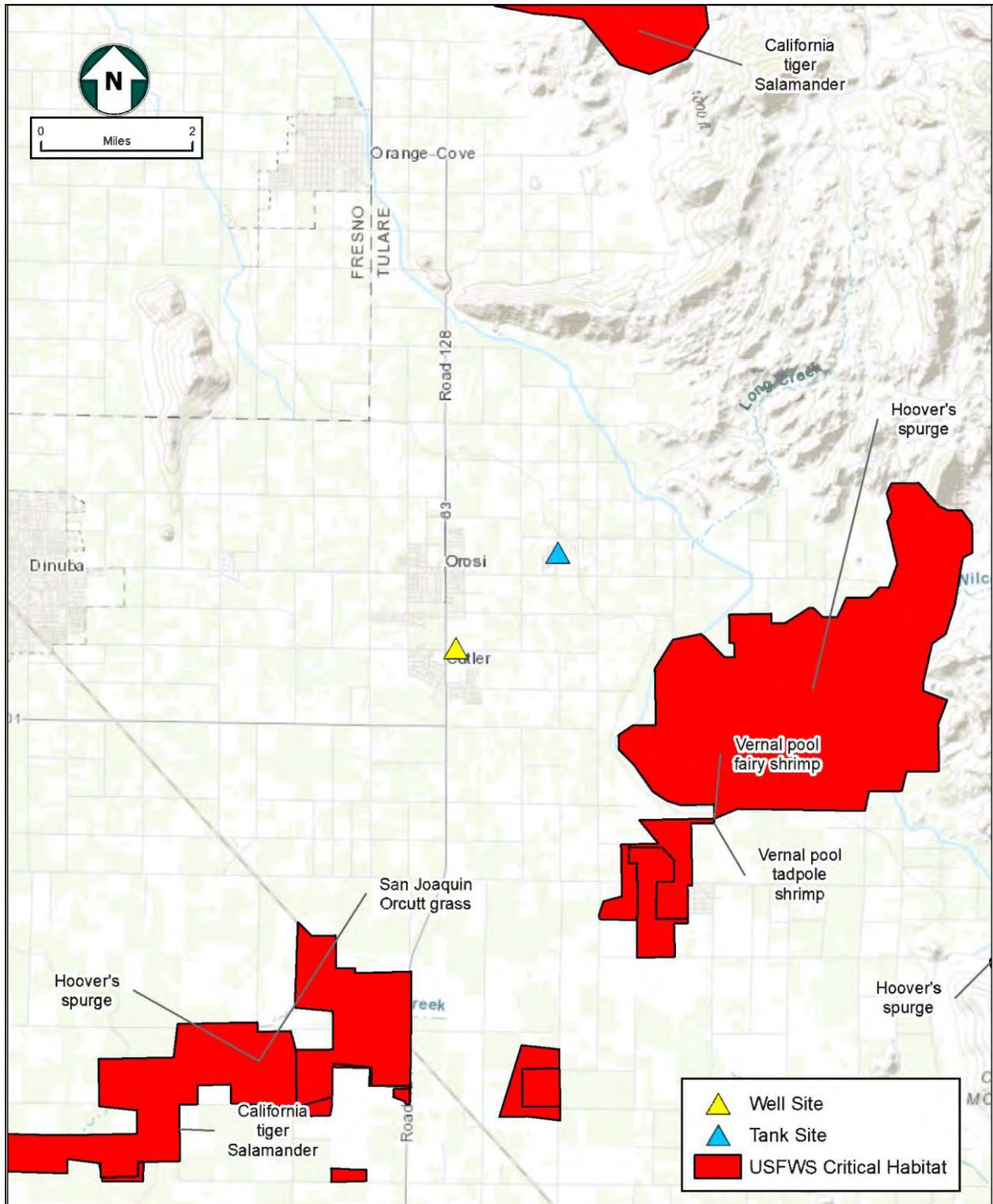
The database and literature review identified one sensitive natural plant community in the vicinity of the Project, Northern Hardpan Vernal Pool, which was recorded approximately 2.9 miles to the southeast (EONDX 47220). The BSA does not contain any sensitive natural plant communities.

### **5.2.2 - CRITICAL HABITATS**

The Project does not overlap any federally designated critical habitats, but there is designated critical habitat for five species within 10 miles of the Project site (Figure 5-1; (USFWS 2020b). California tiger salamander critical habitat occurs approximately 6.2 miles to the southwest and 6.5 miles to the northwest. Critical habitat for Hoover's spurge is approximately 2.8 miles east of the Project site. Critical habitat for San Joaquin Orcutt grass is approximately 4.3 miles to the southwest. Critical habitat for both vernal pool fairy shrimp and vernal pool tadpole shrimp is approximately 3.3 miles southwest of the Project site.

## **5.3 - Jurisdictional Aquatic Resources**

A formal delineation of waters of the U.S. and waters of the State was not conducted for this Project. The search of the NHD and NWI databases showed that there is one jurisdictional waterway within the BSA, the Alta East Branch Canal, and several others in the vicinity (Figure 4-2, (USGS 2020, USFWS 2020c). All these aquatic features are artificial ponds or canals designed for water storage, irrigation, and/or flood control and do not exhibit riparian vegetation or habitat.



**Figure 5-1**  
**Critical Habitat in the Project Vicinity,**  
**East Orosi Tank Project, Tulare County, California**



Where it intersects the BSA, the Alta East Branch Canal has an earthen channel and banks. At the time of the survey, there was stagnant water ponded in the canal where it crosses the Project; there was not any flowing water. Historical imagery shows that this canal periodically contains flowing water (Google LLC 2020). Where it intersects the BSA, the canal runs beneath Avenue 416, where there is a bridge supporting existing pipelines.

Waterways with a definable bed, bank, and channel are subject to the jurisdiction of CDFW under the section 1600 et seq. of the California Fish and Game Code. Any features that drain into navigable waters are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). This canal, which carries water at various times based on irrigation needs, is subject to the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB) and the federal Clean Water Act and may be subject to USACE jurisdiction if the feature is connected to a navigable waterway.

#### **5.4 - Wildlife Movement**

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges. They can also be small scale movement corridors such as riparian zones that provide connectivity and cover to support movement at a local scale.

The Project is not located within any identified wildlife linkages or corridors identified by the California Essential Habitat Connectivity Project (Spence et al. 2010). There is an Essential Connectivity Area mapped approximately 1.7 miles east of the Project site. The Project and surrounding areas contain minimal areas of open habitat, so there would be little need for wildlife to travel through the Project area to move between patches of habitat. The Alta East Branch Canal may be used as a movement corridor for wildlife, both when it is dry and when it contains water.

#### **5.5 - Resources Protected by Local Policies and Ordinances**

The Tulare County General Plan contains policies aimed at the preservation of biological resources and promotes coordination with federal and State resource agencies (Tulare County 2012). These policies are listed in Appendix A. The General Plan also outlines implementation measures with which to uphold these policies, including environmental review for proposed projects and development of mitigation measures for these projects.

#### **5.6 - Habitat Conservation Plans**

The Project site is not located within any Natural Community Conservation Plan area or any other local, regional, or State habitat conservation plan.

## **SECTION 6 - IMPACT ANALYSIS AND AVOIDANCE AND MINIMIZATION MEASURES**

This section provides an analysis of the potential for special-status biological resources to be impacted by the proposed Project. The analysis was developed using the CEQA Appendix G questions, but also provides sufficient information to support a NEPA evaluation and documentation if needed.

### **6.1 - Special-Status Species**

The proposed Project would have a significant effect on biological resources if it would:

- a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

#### **6.1.1 - PROJECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES**

No special-status plant species have potential to occur within the BSA because of a lack of habitat and high levels of disturbance, both historically and presently. The Project will have no impact to special-status plant species.

#### **6.1.2 - PROJECT IMPACTS TO SPECIAL-STATUS ANIMAL SPECIES**

##### **Western Burrowing Owl**

There is no evidence that the western burrowing owl is present within the BSA. There were several small mammal burrows present, indicating a low likelihood for foraging and limited existing burrows for burrowing owls to inhabit. The agricultural and urban habitat types provide foraging habitat but there is no evidence that those areas are being used by burrowing owls, especially given the observations of free-ranging domestic dogs. However, because the species is present in the region year-round it is possible for a transient burrowing owl to occur on-site at any time and it is possible that a burrowing owl burrow could be established within the BSA in the future. Direct impacts to burrowing owl could occur if there is an active burrow or transient individuals within the BSA during the period of construction activities. Construction activities could result in crushing or destroying a burrow with a burrowing owl inside. Noise and vibration from the Project construction activities could alter the daily behaviors of individual owls and effect foraging activities or rearing of young. Implementation of Measures BIO-1 through BIO-5 and BIO-8, listed below, would reduce any impacts to the species to a less than significant level.

##### **Swainson's Hawk**

There was one juvenile Swainson's hawk observed during the survey, approximately 0.25 mile east of the Project. This individual was perched within 25-feet of a large stick nest within a eucalyptus tree behind a rural residence, which was presumed to be the nest from which it fledged. The Project is situated within a mosaic of agricultural row fields and orchards,

which are suitable foraging habitat for this species; farther from the Project there are open nonnative grasslands that may also be used for forage. The community of East Orosi provides large trees suitable for Swainson's hawk to nest in, located in rural residential properties, and it is assumed that this species will be present in and around the Project site. Implementation of Measures BIO-1 and BIO-5 through BIO-8 would reduce any impacts to nesting sites for this species to below significant levels.

### ***Hoary Bat***

There is no positive evidence that the hoary bat is present within the BSA. Suitable roosting habitat is present in the larger trees present on residential properties within the Community of East Orosi and the surrounding lands. This species is not known to forage or roost in agricultural habitats and, as such, is unlikely to be present in the Project area. Direct Project impacts to the hoary bat would be unlikely because no trees are proposed to be removed as part of the Project. No indirect impacts are anticipated given the short duration of construction and lack of suitable roosting and foraging habitat on the Project site. If suitable roosting trees are to be impacted by the Project, implementation of Measures BIO-1, BIO-4 and BIO-8 would reduce any impacts to roosting bats to below significant levels.

### ***San Joaquin Kit Fox***

There is no evidence that San Joaquin kit fox is present within the BSA, but suitable denning and foraging habitat exists within the BSA, and San Joaquin kit foxes are known to adapt to urban environments. Because this species is highly mobile, foxes could be injured or killed if they disperse through the Project area during construction activities. Direct impacts could also include entrapment in trenches or pipes during construction. If there is an active den within or near the BSA during Project construction, noise and vibration from construction activities could alter the daily behaviors of individuals and affect foraging activity and reproductive success. Mortalities from vehicle strikes are possible but the proposed Project would not cause an appreciable increase in traffic at night when the species is most active. Implementation of Measures BIO-1 through BIO-4 and BIO-8 would reduce any impacts to this species to below significant levels.

### ***Nesting Birds***

The BSA contains suitable habitat for a wide variety of nesting bird species, most of which is outside of the areas of direct disturbance, which are mainly on existing asphalt-paved roads. Many bird species, such as mourning dove and house finch, will utilize a variety of nesting substrates, including urban habitats like road shoulders and associated vegetation, nearby anthropogenic structures, and trees in orchards.

Ground-nesting bird species may utilize the compacted dirt shoulders on either side of the Project. Although no trees or shrubs are anticipated to be removed, Project activities adjacent to nesting birds could result in direct impacts to nests from noise and vibration caused by construction activities. Altered behaviors in nesting adults could result from construction activities and increased human presence which could lead to nest failure. No

indirect impacts are anticipated given the short duration of construction and loss of nesting habitat would be negligible. Implementation of Measures BIO-1, BIO-5, and BIO-8 would reduce any impacts to this species to below significant levels.

***Avoidance, Minimization, and Mitigation Measures***

Project impacts to western burrowing owl, Swainson’s hawk, hoary bat, San Joaquin kit fox, or nesting birds are not anticipated but could occur if these species are present during Project activities. Therefore, the following measures are recommended to avoid and minimize impacts to these species.

**BIO-1        Pre-activity Surveys for Special-Status Species.** Within 14 days of the start of Project activities, a pre-activity survey should be conducted by a qualified biologist knowledgeable in the identification of these species. The pre-activity survey should include walking transects to identify presence of burrowing owl, San Joaquin kit fox, nesting birds, roosting bats and other special-status species or their sign, and sensitive natural communities. The pre-activity survey should be walked by no greater than 30-foot transects for 100 percent coverage of the Project site and the 250-foot buffer, where feasible.

**BIO-2        Avoidance of Western Burrowing Owl Burrows and San Joaquin Kit Fox Dens.** If dens or burrows that could support these species are discovered during the pre-activity survey conducted under Measure BIO-1, avoidance buffers outlined below should be established. No work should occur within these buffers unless a qualified biologist approves and monitors the activity.

Burrowing Owl (active burrows)

- Non-breeding season: September 1 to January 31 – 160 feet
- Breeding season: February 1 to August 31 – 250 feet

San Joaquin Kit Fox

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – Contact agencies for further guidance

Any avoidance buffer established should remain in place until the species has left on its own accord. Once the species has left, the burrow may be monitored using trail cameras or tracking medium such as diatomaceous earth. If no species are detected for a minimum of three consecutive days/nights, the burrow may be hand excavated under the direct supervision of a qualified biologist. All burrow tunnels must be examined for animal presence or hand excavated to their terminus before backfilling to ensure no western burrowing owls, kit foxes, or other animals are hiding inside.

Alternatively, western burrowing owls can be passively excluded from a non-nest burrow through the installation of one-way doors. Prior to engaging in

such passive exclusion activities, an Exclusion Plan should be prepared following the guidance outlined in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The Exclusion Plan, including documentation of nearby suitable burrows and/or the installation of artificial dens, should be submitted to the CDFW for review and approval prior to implementation. Once approved, one-way doors may be installed at non-nest burrows. The doors should be monitored for a minimum of three days to ensure burrowing owls have left the burrow. The burrow may then be excavated as described above. If at any time during excavation a burrowing owl is detected within the burrow, excavation activities should immediately cease, and the one-way door reinstalled and monitored until the owl has left the burrow. Hand excavation may then resume. Exclusion efforts should be documented.

**BIO-3    Burrowing Owl and San Joaquin Kit Fox Avoidance.** If, during construction activities, a live burrowing owl or San Joaquin kit fox is encountered, all construction activity should stop until the animal leaves of its own volition. The special-status species should be avoided by construction activities and construction workers and allowed to leave the Project site without harassment. A qualified biologist should remain on-call throughout construction for consultation, to determine whether biological monitoring is necessary or

**BIO-4    Avoidance and Minimization Measures for San Joaquin Kit Fox and Western Burrowing Owl.** The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011). The standard measures for the protection of the San Joaquin kit fox are provided in full in Appendix E.

- Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all Project areas, except on County roads and State and federal highways.
- All Project activities should occur during daylight hours, but if work must be conducted at night then a night-time construction speed limit of 10-mph should be established.
- Off-road traffic outside of designated Project areas should be prohibited.
- To prevent inadvertent entrapment of kit foxes or other animals during construction of the Project, all excavated, steep-walled holes or trenches more than two feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks should be installed.

- Before holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted before proceeding with the work.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS and CDFW should be contacted for guidance.
- All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes and burrowing owls before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- No pets, such as dogs or cats, should be permitted on the Project site.
- Project-related use of rodenticides and herbicides should be restricted.
- A representative should be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative should be identified during the employee education program and their name and telephone number should be provided to the USFWS and CDFW.
- Upon completion of the Project, all areas subject to temporary ground disturbances (including storage and staging areas, temporary roads, pipeline corridors, etc.) should be recontoured if necessary, and revegetated to promote restoration of the area to pre-Project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the Project, but after Project completion will not be subject to further disturbance and has the potential to be revegetated.
- Any Project personnel who are responsible for inadvertently killing or injuring one of these species should immediately report the incident to their representative. This representative should contact the CDFW (and USFWS in the case of San Joaquin kit fox) immediately in the case of a dead, injured, or entrapped San Joaquin kit fox or western burrowing owl.
- The Sacramento Fish and Wildlife office and CDFW Region 4 office should be notified in writing within three working days of the accidental death or

injury to a San Joaquin kit fox during Project related activities. The CDFW should be notified in the case of accidental death to a western burrowing owl. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information.

- New sightings of San Joaquin kit fox or western burrowing owl shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where a San Joaquin kit fox was observed should also be provided to the USFWS.

**BIO-5    Pre-activity Surveys for Nesting Birds.** If Project activities must occur during the nesting season (February 1 to September 15), pre-activity nesting bird surveys should be conducted within seven days prior to the start of construction at the construction site plus a 250-foot buffer for songbirds and a 500-foot buffer for raptors (other than Swainson’s hawk). If no active nests are found, no further action is required. However, existing nests may become active and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the adults or the nest. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist should have the ability to stop construction if nesting adults show any sign of distress.

**BIO-6    Pre-activity Surveys for Swainson’s Hawk Nests.** If Project activities must occur during the nesting season (February 15 to August 31), pre-activity surveys should be conducted for Swainson’s hawk nests in accordance with the *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley*, Swainson’s Hawk Technical Advisory Committee (CDFG 2000). The surveys would be conducted on the Project site plus a 0.5-mile buffer. To meet the minimum level of protection for the species, surveys should be conducted during at least two survey periods.

If no Swainson’s hawk nests are found, no further action is required.

**BIO-7    Swainson’s Hawk Nest Avoidance** If an active Swainson’s hawk nest is discovered at any time within 0.5-mile of active construction, a qualified biologist should complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities

of this Project. Based on this assessment, the biologist will determine if construction activities can proceed and the level of nest monitoring required. Construction activities should not occur within 500 feet of an active nest but depending upon conditions at the site this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist should have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

The Project footprint lies mainly within existing roads and road shoulders, which do not provide foraging habitat. Accordingly, there will be no loss of Swainson's hawk foraging habitat and compensation for loss of foraging habitat is not warranted.

**BIO-8    Worker Environmental Awareness Training.** Prior to the initiation of construction activities, all personnel should attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program should include information on the life histories of special-status species with potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species.

**Significance After Mitigation.** Implementation of the avoidance, minimization, and mitigation measures above will reduce impacts to special-status wildlife species to a less than significant level.

## **6.2 - Sensitive Natural Communities and Critical Habitat**

The proposed Project would have a significant effect on biological resources if it would:

*b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.*

The Project site does not support any riparian or other sensitive natural communities, nor does it overlap with any designated critical habitat. The Project would have no impacts to these resources and no measures are warranted.

## **6.3 - Jurisdictional Aquatic Resources**

The proposed Project would have a significant effect on biological resources if it would:

*c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

There are no wetlands or water features that would be impacted by the Project. The Alta East Branch Canal passes through the BSA, and there is an existing bridge spanning the canal at Avenue 416, where the water pipeline is proposed to be replaced. An existing water pipeline is attached to the bridge, and its replacement will not require any impacts to the banks or channel of the canal. No measures are warranted.

#### **6.4 - Wildlife Movement**

The proposed Project would have a significant effect on biological resources if it would:

- d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.*

The Project is not located within a mapped wildlife movement corridor or linkage. The Alta East Branch canal, which intersects the Project, may serve as a small-scale localized movement corridor, but the canal will not be impacted by the Project. The Project would not impact wildlife movement corridors and no measures are warranted.

#### **6.5 - Local Policies and Ordinances**

The proposed Project would have a significant effect on biological resources if it would:

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

The Project does not conflict with the Tulare County General Plan and is not subject to any local ordinances. Therefore, there are no impacts with respect to local policies and ordinances and no measures are warranted.

#### **6.6 - Adopted or Approved Plans**

The proposed Project would have a significant effect on biological resources if it would:

- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.*

The Project will not conflict with any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan, so there will be no impacts and no measures are warranted.

**SECTION 7 - LIMITATIONS, ASSUMPTIONS, AND USE RELIANCE**

This Biological Analysis Report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are derived from a site reconnaissance and specified historical and literature sources. The biological investigation is limited by the scope of work performed. Reconnaissance-level biological surveys are limited by the environmental conditions present at the time of the surveys. Biological surveys do not guarantee that specific organisms are not present and will not be discovered in the future within the site. In particular, mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

**SECTION 8 - REFERENCES**

- Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2010. Swainson's Hawk (*Buteo swainsoni*), version 2.0. *In* The Birds of North America (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bna.265>.
- Calflora: Information on California plants for education, research and conservation. 2020. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available <https://www.calflora.org/> (Accessed June 24, 2020)
- California Department of Fish and Game (CDFG). 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Swainson's Hawk Technical Advisory Committee. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83990>
- 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>
- California Department of Fish and Wildlife (CDFW). 2020a. California Natural Diversity Database (CNDDB) – Version 5.2.14. Accessed June 29, 2020, from <https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx>.
- . 2019b. *Special Animals List*. Biogeographic Data Branch, California Natural Diversity Database. August 2019.
- . 2019c. Biogeographic Information and Observation System (BIOS). Accessed June 30, 2020 from [www.wildlife.ca.gov/data/BIOS](http://www.wildlife.ca.gov/data/BIOS).
- California Native Plant Society (CNPS). 2019. Inventory of Rare and Endangered Plants. Online edition, v8-03 0.45. Accessed June 23, 2020 from [www.rareplants.cnps.org](http://www.rareplants.cnps.org)
- Federal Emergency Management Agency (FEMA). 2020. FEMA flood map service center. Tulare County Unincorporated Areas. Available at: <https://msc.fema.gov/portal/search#searchresultsanchor>
- Google LLC. 2020. Google Earth Pro.
- Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. *A guide to wildlife habitats of California*. State of California, Resources Agency, Department of Fish and Wildlife. Sacramento, CA 166 pp.
- Rodewald, P. (Editor). 2015. The Birds of North America: <https://birdsna.org>. Cornell Laboratory of Ornithology, Ithaca, NY. (Rodewald, 2015)
- Shuford, W.D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

- Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.
- Tulare County. 2012. General Plan 2030 Update (Adopted 2012). Available at <http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/GENERAL%20PLAN%202012.pdf>
- U.S. Geological Survey (USGS). 2020. National Hydrography Dataset. Accessed June 29, 2020 at: <https://www.usgs.gov/core-science-systems/ngp/national-hydrography>
- United States Department of Agricultural, Natural Resources Conservation Service (NRCS). 2020a. Web Soil Survey. Accessed June 29, 2020. Soil Survey Area: Tulare County, California. Soil Survey Data: Version 14, May 29, 2020. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- . 2012b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Accessed June 30, 2020, at: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>
- United States Fish and Wildlife Service. 1998. *Recovery plan for upland species of the San Joaquin Valley, California*. Region 1. Portland, OR. 319 pp.
- . 2011. *U.S. Fish and Wildlife Service standardized recommendations for protection of the endangered San Joaquin kit fox prior to or during ground disturbance*. January 2011. Sacramento Fish and Wildlife Office.
- . 2020a. Information for Planning and Consultation online project planning tool. Accessed June 23, 2020 at: <https://ecos.fws.gov/ipac/>
- . 2020b. Critical Habitat Portal. Accessed June 30, 2020 at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>
- . 2020c. National Wetlands Inventory Wetlands Mapper. Accessed June 29, 2020 at: <https://www.fws.gov/wetlands/data/mapper.html>
- Western Regional Climate Center (WRCC). 2020. Cooperative Climatological Data Summaries, NOAA Cooperative Station Orange Cove, California (046476). <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6476>
- Winchell, Clark S. 1994. Natural History and Protection of Burrowing Owls. Vertebrate Pest Conference Proceedings collection: Proceedings of the Sixteenth Vertebrate Pest Conference (1994) pp 83-86. (Winchell, 1994)
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. *California's Wildlife. Vol. I-III*. 1988-1990, as updated online. California Dept. of Fish and Game,

Sacramento, California. Available at: <https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range> (Zeiner et al., 1990)

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**APPENDIX A**  
**REGULATORY SETTING**  
**EAST OROSI TANK PROJECT**

# Regulatory Setting

## ***Federal Laws and Regulations***

### ***Federal Endangered Species Act of 1973 (USC, Title 16, Sections 1531 -1543)***

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of “harm” includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. “Harass” is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction of adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued with an incidental take statement that exempts the activity from FESA's take prohibitions.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA: 1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special

management consideration or protection; and 2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

***Migratory Bird Treaty Act (USC, Title 16, Sections 703 - 711)***

The MBTA, first enacted in 1918, is a series of treaties that the United State has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird” (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

***BALD AND GOLDEN EAGLE PROTECTION ACT OF 1940 (USC, TITLE 16, SECTION 668)***

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take of bald and golden eagles includes to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially inferring with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

***Federal Clean Water Act (USC, Title 33, Sections 1521 - 1376)***

The Federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. Section 401 requires that a Project applicant that is pursuing a federal license or permit allowing a discharge to waters of the U.S. to obtain State Certification of Water Quality, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) that regulates the discharge of the dredged or fill material into waters of the U.S., including wetlands. The USACA implementing regulations are found in CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

## ***Applicable State Laws and Regulations***

### ***California Environmental Quality Act (California Public Resources Code, Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 - 15387)***

The California Environmental Quality Act (CEQA) is California's broadest environmental law. CEQA helps guide the issuance of permits and approval of projects. Courts have interpreted CEQA to afford the fullest protection of the environment within the reasonable scope of the statutes. CEQA applies to all discretionary projects proposed to be conducted or approved by a State, County, or City agency, including private projects requiring discretionary government approval.

The purpose of CEQA is to disclose to the public the significant environmental effects of a proposed discretionary project; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision making process to approve discretionary projects; enhance public participation in the environmental review process; and improve interagency coordination.

State CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State list of protected species nonetheless may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals.

### ***California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)***

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For Projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the CDFW has the option of issuing a Consistency Determination (Section 2080.1) for Projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the “fully mitigate” standard of CESA, and other applicable conditions.

### ***Porter-Cologne Water Quality Control Act***

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB regulates waters of the State under the authority of the Porter-Cologne Water Quality Control Act (Porter Cologne Act). The RWQCB requires Projects to avoid impacts to wetlands whenever feasible and requires that Projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for

impacts to wetlands and/or waters of the State. The RWQCB has jurisdiction over waters deemed ‘isolated’ or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste into waters of the State, and such discharges are authorized through an Order of Waste Discharge (or waiver of discharge) from the RWQCB.

***Various Sections of the California State and Fish and Game Code***

**SECTION 460 AND SECTIONS 4000-4003**

Chapter 5 of the California Fish and Game Code (FGC) describes regulations concerning the take of furbearing mammals, including defining methods of take, seasons of take, bag and possession limits, and areas of the State where take is allowed. Section 4000-4003 defines furbearing mammals, and the issuance of permits by the Department. Sections 460 and 4000 identifies fisher, marten, river otter, desert kit fox and red fox as furbearing mammals, and Section 460 prohibits take of these species at any time. This section of the California Fish and Game Code (FGC) has historically been interpreted to apply to restrictions on furbearer trapping permits but has recently been expanded by CDFW to apply to any forms of take and treated as if these species were listed under CESA.

**SECTIONS 1600 THROUGH 1616**

Under these sections of the FGC, a Project operator is required to notify CDFW prior to any Project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the California Code of Regulations, a “stream” is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable Project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

**SECTIONS 3511, 4700, 5050, AND 5515**

The protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statues prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species, except as allowed for in an approved Natural Communities Conservation Plan (NCCP), or through direct legislative action.

**SECTIONS 1900 THROUGH 1913 - NATIVE PLANT PROTECTION ACT**

California’s Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provision of the NPPA prohibit that taking of listed plants from the wild and require notification of CDFW at least ten days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. A Project proponent is required to conduct botanical inventories and consult with CDFW during Project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

**Local and Regional Laws, Regulations, and Policies**

**Tulare County General Plan (2030 Update)**

Chapter 8 of the Tulare County General Plan, Environmental Resources Management (ERM), addresses several natural resources, including Biological Resources. The ERM element identifies goals, policies, and implementation measures to ensure the appropriate use, enjoyment, and protection of natural and cultural resources in Tulare County.

**Section 8.1: Biological Resources**

**Goals**

**ERM-1:** To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.

**Policies**

Policy	Description
ERM-1.1	<p><b>Protection of Rare and Endangered Species</b>                      The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or Federal government, through compatible land use development.</p>
ERM-1.2	<p><b>Development in Environmentally Sensitive Areas</b>                      The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth.</p>
ERM-1.3	<p><b>Encourage Cluster Development</b>                      When reviewing development proposals, the County shall encourage cluster development in areas with moderate to high potential for sensitive habitat.</p>

ERM-1.4	<p><b>Protect Riparian Areas</b> The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls.</p>
ERM-1.5	<p><b>Riparian Management Plans and Mining Reclamation Plans</b> The County shall require mining reclamation plans and other management plans to include measures that protect, maintain, and restore riparian resources and habitats.</p>
ERM-1.6	<p><b>Management of Wetlands</b> The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats.</p>
ERM-1.7	<p><b>Planting of Native Vegetation</b> The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained.</p>
ERM-1.8	<p><b>Open Space Buffers</b> The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.</p>
ERM-1.9	<p><b>Coordination of Management on Adjacent Lands</b> County shall work with other government land management agencies (such as the Bureau of Land Management, US Forest Service, National Park Service) to preserve and protect biological resources, including those within and adjacent to designated critical habitat, reserves, preserves, and other protected lands, while maintaining the ability to utilize and enjoy the natural resources in the County.</p>
ERM-1.10	<p><b>Appropriate Access for Recreation</b> The County shall encourage appropriate access to resource-managed lands.</p>
ERM-1.11	<p><b>Hunting and Fishing</b> The County shall provide opportunities for hunting and fishing activities within the County pursuant to appropriate regulations of the California Fish &amp; Game Code.</p>
ERM-1.12	<p><b>Management of Oak Woodland Communities</b> The County shall support the conservation and management of oak woodland communities and their habitats.</p>
ERM-1.13	<p><b>Pesticides</b> The Tulare County Agricultural Commissioner/Sealer will cooperate with State and Federal agencies in evaluating the side effects of new materials and techniques in pesticide controls to limit effects on natural resources.</p>

ERM-1.14	<p><b>Mitigation and Conservation Banking Program</b>          The County shall support the establishment and administration of a mitigation banking program, including working cooperatively with TCAG, Federal, State, not-for-profit and other agencies and groups to evaluate and identify appropriate lands for protection and recovery of threatened and endangered species impacted during the land development process.</p>
ERM-1.15	<p><b>Minimize Lighting Impacts</b>          The County shall ensure that lighting associated with new development or facilities (including street lighting, recreational facilities, and parking) shall be designed to prevent artificial lighting from illuminating adjacent natural areas at a level greater than one foot candle above ambient conditions.</p>
ERM-1.16	<p><b>Coordinate with Wildlife Agencies</b>          The County shall cooperate with State and federal wildlife agencies to address linkages between habitat areas.</p>
ERM-1.17	<p><b>Conservation Plan Coordination</b>          The County shall coordinate with local, State, and federal habitat conservation planning efforts (including Section 10 Habitat Conservation Plan) to protect critical habitat areas that support endangered species and other special-status species.</p>

**Implementation Measures**

1. The County shall encourage and support public education that will alert citizens of the County to the types of plant and animal life which need protection and preservation. Methods of public education could include printed material, speakers, and displays, made available through the news media, local educators, County facilities (such as libraries), or the internet.
2. The County shall review development proposals against the California Natural Diversity Data Base, and other available studies provided by the California Department of Fish and Game, and consult, as appropriate, with the California Department of Fish and Game and U.S. Fish and Wildlife to assist in identifying potential conflicts with sensitive natural communities or special status species.
3. On project sites that have the potential to contain species of local or regional concern, sensitive natural communities or special-status species, the County shall require the project applicant to have the site surveyed and mapped by a qualified biologist. A report on the finding of this survey shall be submitted to the County as part of the application and environmental review process.
4. Where sensitive habitat for special status species is found to exist on a site and biological survey validates that such habitat does exist and there is the potential for occurrences of special status species to be found, the County shall require a plan to protect these areas, with assurances to protect these areas to be submitted prior to the time of construction. Such plan shall first recommend avoidance where at all feasible. When avoidance is infeasible, the County shall consider a variety of optional measures to limit the loss of habitat, including modification of the proposal or other

such acceptable practice as identified in a biological study conducted by an environmental professional.

5. The County shall work cooperatively with the California Department of Fish and Game to develop a joint study which will identify in Tulare County the following:
  - a. Significant habitat to be preserved in a natural state for the survival of rare and endangered species,
  - b. Fish and game habitat desirable for meeting the quantity of demand for fishing and hunting, and
  - c. Wildlife habitat needed for meeting the quantity of demand for recreational, educational and scientific observation, scenic enjoyment and appreciation of open space.
6. On project sites with the potential to contain wetland resources, a wetland delineation study shall be prepared using the protocol defined by the Army Corps of Engineers. A report on the findings of this survey shall be submitted to the County as part of the application process and environmental review process.
7. The County shall utilize provisions within the Zoning Ordinance to designate Resource Conservation Areas designed to protect natural habitats as those areas are identified over time.
8. If feasible and needed, the County shall develop and administer a mitigation banking program in conjunction with TCAG and other stake holders.
9. The County shall incorporate into the Zoning Ordinance requirements for the dedication of buffers as public open space for riparian and wetland areas for development or other discretionary permits where the development or activity will impact a riparian area. Special attention should be given to preservation of trout habitat. Buffer requirements should be measured from the edge of the riparian area and set at distances recommended by biological studies of the site.
10. The County shall actively pursue a program of acquisition or preservation of vernal pools. This can be done through a variety of mechanisms, including establishing a mitigation banking program, conservation easements, and trusts.
11. The County shall continue efforts to maintain and enlarge wetland preserves, which provide waterfowl habitat necessary to the maintenance of the flyway route through the valley. Such wetlands should also be protected through stormwater management programs, erosion control, and public education.
12. The County shall develop a list of native vegetation to be used as a landscape pallet for use by citizens and developers.
13. The County shall classify and preserve private lands which are prime timber lands and reserve them for that use, while at the same time, encouraging compatible recreation and open space uses.
14. The County shall ensure that the provisions of Public Resources Code § 21083.4 are followed when evaluating projects in areas containing oak woodlands.

15. The County shall work with stakeholders to determine the feasibility of adopting an oak woodlands management plan pursuant to the Oak Woodlands Conservation Act of 2001. The purpose will be to qualify for grant funding to support and encourage voluntary long-term private stewardship and conservation of California's oak woodlands.
16. The County shall establish a program to require the replacement planting of native oaks where oak woodlands are proposed for alteration by development projects.
17. The County shall continue its enforcement program that provides consequences for the destruction of wildlife, natural biological control organisms, and other damages beyond the boundaries of the control area resulting from the inappropriate application of pesticides or herbicides. This should include damages caused by wind drift, also those caused by irrigation waters impregnated with pesticides or herbicides, which are ejected into waterways and public bodies.
18. The County shall promote a public relations program which will explain typical agricultural operations and the County's Right to Farm Ordinance.

**APPENDIX B**

**REPRESENTATIVE PHOTOGRAPHS OF THE  
EAST OROSI TANK PROJECT**



**Photograph 1:** Intersection of Road 128 and Avenue 408, looking east along Avenue 408. The new well location is on the left. 36.530330, -119.285639  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 2:** Eastern end of southern Project location, looking west along Avenue 408. 36.530171, -119.280590  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 3:** Road 128, mid-way along southern Project location, looking south.  
36.532732, -119.286707  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 4:** West side of northern Project location, looking east along Road 416.  
36.544704, -119.276714  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 5:** Proposed water tank location, looking north.  
36.548670, -119.260311  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 6:** Intersection of Avenue 417 and Road 139 in East Orosi, looking north.  
36.545974, -119.262640  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 7:** Alta East Branch Canal where it passes beneath Avenue 416, looking south.  
36.5544369, -119.261112  
Photograph taken by Eric Madueno on June 24, 2020.



**Photograph 8:** Cliff swallow nests beneath Avenue 416 bridge.  
36.544508, -119.261121  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 9:** Juvenile Swainson's hawk perched to left of its nest in a eucalyptus.  
36.546824, -119.255977  
Photograph taken by Shannon Gleason on June 24, 2020.



**Photograph 10:** Intersection of Idaho Avenue and Road 140, looking west.  
36.547118, -119.260604  
Photograph taken by Shannon Gleason on June 24, 2020.

**APPENDIX C**

**PLANT AND ANIMAL SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA  
EAST OROSI TANK PROJECT**

**Appendix C – Plant and Animal Species Observed within the BSA**

**Table C-1  
Plant Species Observed within the Biological Study Area on June 24, 2020.  
East Orosi Tank Project, Tulare County, California**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>	<b>Native or Introduced</b>
<b>Trees</b>			
<i>Citrus x sinensis</i>	orange	-	Introduced
<i>Cupressus sempervirens</i>	Italian cypress	-	Introduced
<i>Eucalyptus camaldulensis</i>	red gum	-	Introduced; Cal-IPC Limited
<i>Magnolia grandiflora</i>	magnolia	-	Introduced
<i>Nerium oleander</i>	oleander	-	Introduced
<i>Olea europaea</i>	olive	-	Introduced; Cal-IPC Limited
<i>Pinus</i> sp.	pine tree	-	Introduced
<i>Prunus armeniaca</i>	apricot	-	Introduced
<i>Punica granatum</i>	pomegranate	-	Introduced
<i>Quercus lobata</i>	valley oak	-	Native
<i>Robinia pseudoacacia</i>	black locust	-	Introduced; Cal-IPC Limited
<i>Sambucus nigra</i>	black elderberry	-	Native
<i>Salix babylonica</i>	weeping willow	-	Introduced
<i>Schinus molle</i>	Peruvian pepper tree	-	Introduced; Cal-IPC Limited
<i>Washingtonia robusta</i>	Mexican fan palm	-	Introduced; Cal-IPC Moderate
<i>Yucca brevifolia</i>	Joshua tree	-	Native
<b>Shrubs</b>			
<i>Bougainvillea spectabilis</i>	bougainvillea	-	Introduced
<i>Opuntia</i> sp.	prickly pear	-	Native
<i>Rosa</i> sp.	garden rose	-	Introduced
<i>Vitis vinifera</i>	grape	-	Introduced
<b>Herbs</b>			
<i>Alcea rosea</i>	hollyhock	-	Introduced
<i>Amaranthus albus</i>	pigweed amaranth	-	Introduced
<i>Carduus pycnocephalus</i>	Italian thistle	-	Introduced; Cal-IPC moderate
<i>Centaurea solstitialis</i>	yellow star thistle	-	Introduced; Cal-IPC High
<i>Chenopodium album</i>	lambs quarters	-	Introduced
<i>Convolvulus arvensis</i>	field bindweed	-	Introduced
<i>Datura wrightii</i>	Jimsonweed	-	Native
<i>Erigeron canadensis</i>	horseweed	-	Native
<i>Helianthus</i> sp.	sunflower	-	Unknown
<i>Lactuca serriola</i>	prickly lettuce	-	Introduced
<i>Malva parviflora</i>	cheeseweed mallow	-	Introduced
<i>Medicago polymorpha</i>	California burclover	-	Introduced; Cal-IPC Limited
<i>Pelargonium</i> sp.	geranium	-	Introduced
<i>Raphanus raphanistrum</i>	wild radish	-	Introduced
<i>Rumex crispus</i>	curly dock	-	Introduced; Cal-IPC Limited
<i>Solanum elaeagnifolium</i>	silverleaf nightshade	-	Introduced
<i>Strelitzia reginae</i>	bird of paradise	-	Introduced
<i>Taraxacum officinale</i>	common dandelion	-	Introduced

## Appendix C – Plant and Animal Species Observed within the BSA

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<i>Tribulus terrestris</i>	puncture vine	-	Introduced; Cal-IPC Limited
<i>Trifolium repens</i>	white clover	-	Introduced
<b>Grasses</b>			
<i>Avena barbata</i>	wild oat	-	Introduced; Cal-IPC Moderate
<i>Bromus madridensis ssp. rubens</i>	red brome	-	Introduced; Cal-IPC High
<i>Cynodon dactylon</i>	Bermuda grass	-	Introduced; Cal-IPC Moderate
<i>Paspalum dilatatum</i>	dallisgrass	-	Introduced
<i>Schismus arabicus</i>	Mediterranean grass	-	Introduced; Cal-IPC Limited
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	-	Introduced; Cal-IPC Limited
<i>Sorghum halepense</i>	johnsongrass	-	Introduced
<i>Zea mays</i>	corn	-	Introduced

**Appendix C – Plant and Animal Species Observed within the BSA**

**Table C-2  
Animal Species Observed within the Biological Study Area on June 24, 2020.  
East Orosi Tank Project, Tulare County, California**

Scientific Name	Common Name	Status	Native or Introduced
<b>Amphibians and Reptiles</b>			
<i>Lithobates catesbeianus</i>	American bullfrog	-	Introduced
<b>Birds</b>			
<i>Aphelocoma californica</i>	California scrub jay	-	Native
<i>Buteo lineatus</i>	red-shouldered hawk	-	Native
<i>Buteo jamaicensis</i>	red-tailed hawk	-	Native
<i>Buteo swainsoni</i>	Swainson's hawk	ST	Native
<i>Charadrius vociferus</i>	killdeer	-	Native
<i>Corvus brachyrhynchos</i>	American crow	-	Native
<i>Falco sparverius</i>	American kestrel	-	Native
<i>Gallus gallus</i>	domestic chicken	-	Introduced
<i>Haemorhous mexicanus</i>	house finch	-	Native
<i>Petrochelidon pyrrhonota</i>	cliff swallow	-	Native
<i>Streptopelia decaocto</i>	Eurasian collared dove	-	Introduced
<i>Tyrannus verticalis</i>	western kingbird	-	Native
<i>Zenaida macroura</i>	mourning dove	-	Native
<b>Mammals</b>			
<i>Canis lupus familiaris</i>	domestic dog	-	Introduced
<i>Equus caballus</i>	domestic horse	-	Introduced
<i>Otospermophilus beecheyi</i>	California ground squirrel	-	Native
<i>Thomomys</i> sp.	pocket gopher*	-	Native

\* Indicates that only sign (e.g., dens or burrows, scat, prey remains, tracks) of the species was observed

**APPENDIX D**

**SPECIAL-STATUS SPECIES DATABASE SEARCH RESULTS FOR THE  
EAST OROSI TANK PROJECT**

**Table D-1**  
**Special-Status Resources in the Regional Vicinity of the Project S**  
**East Orosi Tank Project, Tulare County, California**

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
<b>Sensitive Natural Communities</b>				
Northern Hardpan Vernal Pool	-/- -/-	This community occurs on old, very acidic, Fe-Si cemented hardpan soils (Redding, San Joaquin, and similar series). The microrelief on these soils typically is hummocky, with mounds intervening between localized depressions. Winter rainfall perches on the hardpan, forming pools in the depressions. Evaporation (not runoff) empties pools in the spring.	No	This sensitive natural community is not present on the Project site. Nearest CNDDDB occurrence (EONDX 26877) was from 1986 and located approximately 2.9-miles southeast of the Project site.
<b>Plants</b>				
<i>Atriplex cordulata</i> var. <i>erecticaulis</i> Earlimart orache	-/- 1B.2/-	Annual herb; blooms August to September, sometimes into November; occurs in low-lying, sparsely vegetated valley and foothill grasslands and on mounds between vernal pools; elevation approximately 130 to 330 feet; known primarily from the valley floor in Kings, Kern, and Tulare counties; threatened by vehicles and possibly development and competition from non-native plants.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 47220) was from 2010 and located approximately 4.1-miles southeast of the Project site.
<i>Atriplex depressa</i> brittlescale	-/- 1B.2/-	Annual herb; blooms April to October; occurs on alkaline and clay soils in chenopod scrub, meadows and seeps, playas, vernal pools, and valley and foothill grassland; elevation approximately 1 to 1050 feet; threatened by development, grazing, and trampling; documented on Central Valley floor, foothills, and lower mountains.	No	Suitable habitat is absent from the Project site. The only CNDDDB occurrence (EONDX 47220) within 10 miles is from 1968 and located approximately 5.7-miles southwest of the Project site.
<i>Atriplex minuscula</i> lesser saltscale	-/- 1B.1/-	Annual herb; blooms May to October; occurs on alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grassland;	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		elevation approximately 50 to 655 feet; threatened by agriculture and solar energy development; documented primarily on Central Valley floor with some lower foothill occurrences.		83597) was from 2010 and located approximately 4.1-miles southeast of the Project site.
<i>Atriplex persistens</i> vernal pool smallscale	-/- 1B.2/-	Annual herb; blooms June and August – October; restricted to alkaline vernal pools on the floor of the San Joaquin Valley and is endemic to California; elevation approximately 30 to 375 feet; threatened by agriculture and flood control activities; documented primarily on Central Valley floor.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 54533) was from 2010 and located approximately 3.8-miles southeast of the Project site.
<i>Delphinium recurvatum</i> recurved larkspur	-/- 1B.2/-	Perennial herb; blooms March to June; occurs in alkaline conditions in chenopod scrub, cismontane woodland, and valley and foothill grassland; elevation approximately 10 to 2,591 feet; occurs throughout Central Valley and Coast Ranges from Butte County south; few occurrences in Antelope Valley; threatened by agriculture and competition from non-native plants.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 83134) was from 2008 and located approximately 4.0-miles southeast of the Project site.
<i>Eryngium spinosepalum</i> spiny-sepaled button celery	-/- 1B.2/-	Annual or perennial herb; blooms April to June; occurs in vernal pools and moist areas in valley and foothill grasslands; elevation approximately 260-3200 feet; threatened by development, grazing, road maintenance, hydrological alterations, and agriculture; documented primarily in foothills of Sierra Nevada with scattered occurrences on Central Valley floor and western foothills and lower mountains.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 6179) was from 1995 and located approximately 3.8-miles southeast of the Project site.
<i>Euphorbia hooveri</i> Hoover's spurge	-/- 1B.2/-	Annual herb; blooms July to September, sometimes into October; occurs in vernal pool habitats from approximately 80 feet to 820 feet; several scattered occurrences throughout the Central Valley, mostly on the valley floor or	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 407) was from 2010 and located approximately 3.8-

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		surrounding foothills; threatened by grazing, agriculture, and non-native plants.		miles southeast of the Project site.
<i>Helianthus winteri</i> Winter's sunflower	-/- 1B.2/-	Perennial herb; blooms from January to December; occurs in openings on relatively steep south-facing slopes, granitic, often rocky, often roadsides, cismontane woodland, valley and foothill grassland; ranges in elevation 410 to 8,415 feet.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 110893) was from 2018 and located approximately 2.0-miles northeast of the Project site.
<i>Imperata brevifolia</i> California satintail	-/- 2B.1/-	Perennial rhizomatous herb; blooms September to May; occurs in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub in mesic or alkali soils; elevation ranges from 0 to 3,986 feet; threatened by development and agriculture.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 69850) was from 1993 and located approximately 9.2-miles northwest of the Project site.
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	-/- 1B.1/-	Annual herb; blooms February to June; occurs in coastal marshes and swamps, and playas and vernal pools in the interior of California; ranges in elevation from 0 to 4,002 feet; threatened by urbanization and agricultural development.	No	Suitable habitat is absent from the Project site. The only CNDDDB occurrence (EONDX 114944) within 10-miles was from 2015 and located approximately 2.2-miles southeast of the Project site.
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	-/- 1B.1/-	Annual herb; blooms April to September; occurs in vernal pools; elevation ~32-2,500 feet; threatened by agricultural, development, overgrazing, channelization, and non-native plants; documented primarily on eastern Central Valley floor and foothills from Visalia north.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 36397) was from 2017 and located approximately 6.6-miles southwest of the Project site.
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	-/- 1B.1/-	Annual herb; blooms March-April; occurs in cismontane woodland, valley and foothill grasslands, and usually adobe clay; elevation from ~295-2,625 feet; more than half of known occurrences are very small; seriously threatened	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 32158) was from 2010 and located approximately 2.7-

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		by agriculture, grazing, development, non-native plants, road construction and maintenance, and flood control activities; possibly threatened by road maintenance.		miles southeast of the Project site.
<i>Puccinellia simplex</i> California alkali grass	-/- 1B.2/-	Annual herb; blooms March-May; occurs in vernal moist, alkaline conditions in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools, usually on sinks, flats, and lake margins; elevation ~6 to 3,050 feet; threatened by hydrological alterations, urbanization, agricultural conversion, development, and habitat fragmentation/disturbance; scattered documented occurrence throughout Central Valley, coast ranges, and Mohave desert.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 100166) was from 1936 and located approximately 5.0-miles south of the Project site. The most recent CNDDDB occurrence (EONDX 114931) was from 2017 and located approximately 9.0-miles southwest of the Project site.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	-/- 1B.2/-	Perennial rhizomatous herb (emergent); blooms May-October, sometimes into November; occurs in assorted shallow freshwater marshes and swamps, and slow-moving waterways, in sandy loam and clay soils; elevation ~0 to 2,130 feet; threatened by grazing, development, recreational activities, non-native plants, road widening, and channel alteration/maintenance; documented primarily throughout Central Valley on valley floor and surrounding foothills.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 111247) was from 2017 and located approximately 1.6-miles northwest of the Project site.
<b>Invertebrates</b>				
<i>Bombus morrisoni</i> Morrison bumble bee	-/- -/-	Found in the Sierra-Cascade Crest east to the Intermountain West and to South Dakota and south into Mexico; select food plant genera: <i>Cirsium</i> , <i>Cleome</i> , <i>Helianthus</i> , <i>Lupinus</i> , <i>Chrysothamnus</i> , and <i>Melilotus</i> .	No	Suitable habitat is absent from the Project site, and few native plant species suitable as food sources were observed on occasion during the survey. Nearest CNDDDB occurrence (EONDX 98616) was from 1957 and located

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
				approximately 4.8-miles west of the Project site.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/- -/-	Occur a variety of vernal pool habitats that range from small, clear pools to large, turbid and alkaline pools; more common in pools less than 0.05 acre, typically as part of larger vernal pool complexes; adults active from early December to early May; pools must hold water for at least 18 days, the minimum to complete the life cycle if temperatures are optimal; eggs laid in spring and persist through dry season as cysts; current California distribution includes the Central Valley and coast ranges; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 73202) was from 2005 and located approximately 1.5-miles northwest of the Project site.
<i>Branchinecta mesovallensis</i> midvalley fairy shrimp		Found in small, warmer, short-lived vernal pools and grass-bottomed swales less than 663 square feet; can reach maturity in as few as eight (8) days and complete multiple hatchings in a single rainy season; eggs laid in spring and persist through dry season as cysts; endemic to small portion of the Central Valley in Southeastern Sacramento, Southern Sierra Foothill, San Joaquin and Solano-Colusa Vernal Pool Regions; range may be larger as this species was only recently described; potential threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 95737) was from 2010 and located approximately 5.7-miles north of the Project site.
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	FE/- -/-	Occur in wide variety of ephemeral wetland habitats from 6.5 square feet to 88 acres in size; majority of occurrences found on High Terrace landforms and Redding and Corning soils; minimum 25 days to mature; average age to reproduction is 54 days; predators of vernal pool fairy shrimp; eggs laid in spring and persist	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 409) was from 1995 and located approximately 3.8-miles southeast of the Project site.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		through dry season as cysts; current distribution is in Central Valley and San Francisco Bay area; threatened by habitat loss, degradation, and fragmentation, and interference with vernal pool hydrology.		
<i>Lytta molesta</i> molestan blister beetle	-/- -/-	Often found on flowers of native plant species; may be associated with dried vernal pools; adults are herbivorous, with many species feeding mostly on flowers, but some feed on foliage; distribution not well understood but known from Central Valley from Contra Costa County to Tulare and Kern Counties.	No	Suitable habitat and food sources absent from the Project site. Nearest CNDDDB occurrence (EONDX 60675) was from 1956 and located approximately 5.0-miles northwest of the Project site.
<i>Talanites moodyae</i> Moody's gnaphosid spider	-/- -/-	This arachnid species occurs in leaf litter, in moist coastal habitats and grasslands, generally in serpentine soils. It is a nocturnal hunter.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 59167) was from 1994 and located approximately 4.3-miles northwest of the Project site.
<b>Fish</b>				
<i>Hypomesus transpacificus</i> delta smelt	FT/SE -/-	Small fish endemic to the San Francisco Estuary and the larger Sacramento-San Joaquin Delta; moves between freshwater and low salinity water throughout year; most spawning happens in tidally influenced backwater sloughs and channel edgewater; historical distribution did not extend beyond Mossdale on the San Joaquin River and Sacramento on the Sacramento River.	No	Suitable habitat absent and there are no CNDDDB recorded occurrences within 10-miles of the Project.
<b>Amphibians</b>				
<i>Ambystoma californiense</i> California tiger salamander	-/FT -/-	Occurs in ephemeral pools or ponds that mimic them, and that remain inundated for 12 weeks or more; can occupy artificial ponds (ranch stock ponds) if ponds are allowed to go dry in the summer; requires nearby upland habitat	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 60518) was from 2005 and was located approximately 3.8-

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		containing small mammal burrows or crevices that provide refugia; restricted to grasslands and low foothills; lives underground most of the year.		miles southeast of the Project site.
<i>Lithobates pipiens</i> northern leopard frog	-/- -/SSC	Highly aquatic; occurs in quiet aquatic habitats with permanent or semi-permanent water; shoreline cover and/or emergent vegetation important; breeds in emergent wetlands; uncommon and localized in California; Found in Modoc County and possibly eastern Lassen County, and along the Colorado River and irrigated areas in Imperial, Tulare, and Kern Counties; may have been introduced in many areas; elevation range from sea level to 7,000 feet.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 74665) was from 1958 and located approximately 1.1-miles east of the Project site.
<i>Rana boylei</i> foothill yellow-legged frog	-/FT -/-	Found in streams and rivers with rocky substrates and open, sunny banks, and sometimes isolated pools, vegetation backwaters, and deep, shaded spring-fed pools; forests, chaparral, woodlands; lays eggs on downstream side of rocks in shallow, slow-moving water; current distribution includes north coast, northern Sierra Nevada, foothills of southern Sierra Nevada mountains (almost extinct); elevation from sea level to 6,000 feet.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 28470) was from 1970's, is considered extirpated, and was located approximately 6.0-miles northeast of the Project site.
<i>Rana draytonii</i> California red-legged frog	FT/ST -/-	Occurs primarily in and near ponds in forests, woodlands, grasslands, coastal scrub, and stream sides with plant cover; mostly in lower elevations; breeding habitat may be permanent or ephemeral; estivates in animal burrows or other moist refuges when ephemeral habitat is dry; endemic to California and northern Baja California; found throughout coastal California from Mendocino County south; inland distribution includes northern Sacramento Valley and foothills of Sierra Nevada south to	No	There are no CNDDDB recorded occurrences for the delta smelt within 10-miles of the Project site.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		Tulare County (possibly Kern County); elevation from sea level to 5,000 feet.		
<i>Spea hammondi</i> western spadefoot	-/- -/SSC	Species relies on vernal pools for breeding where predators cannot become established; open areas with sand or gravelly soils in a variety of habitats: grasslands, coastal scrub, woodlands, chaparral, sandy washes, lowland river floodplains, alkali flats, foothills, and mountains; endemic to California and northern Baja California; distribution from Redding south throughout Central Valley and foothills, throughout South Coast Ranges into coastal southern California to Transverse mountains and Peninsular mountains; elevation from sea level to 4,500 feet.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 410) was from 1995 and located approximately 3.8-miles southeast of the Project site.
<b>Reptiles</b>				
<i>Gambelia silus</i> [=sila] blunt-nosed leopard lizard	FE/SE -/FP	Occurs in semiarid habitats within the southern Central Valley and Cuyama Valley; habitats typically are flat and have large open areas with scattered shrubs for refuge; uses small mammal burrows for shelter; spends most of year underground, surfacing in spring/early summer to breed and eat; hatchlings surface in fall to eat; may interbreed with long-nosed leopard lizard in Cuyama Valley; threatened by habitat loss/fragmentation and drought; elevation from 100-2,400 feet.	No	There are no CNDDDB recorded occurrences for the delta smelt within 10-miles of the Project site.
<i>Thamnophis gigas</i> giant gartersnake	FT/ST -/-	Highly aquatic snake found in marshes and sloughs, drainage canals, and irrigation ditches; prefers vegetation close to water for basking; does not venture more than 200 feet from aquatic habitat; elevation from sea level to 400 feet; endemic to California; currently ranges from Glenn County to southern edge of San	No	There are no CNDDDB recorded occurrences for the delta smelt within 10-miles of the Project site.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		Francisco Bay Delta, and from Merced County to northern Fresno County.		
<b>Birds</b>				
<i>Athene cunicularia</i> burrowing owl	-/- -/SSC	Occupies variety of open, semi-arid to arid habitats throughout central and southern California, including desert regions; prefers open habitats with few shrubs or trees; most active around sunrise and sunset; utilizes burrows constructed by mammals year-round for shelter and nesting; well documented in urban areas where patches of undeveloped areas are present (e.g., canals, airports, drainage basins), and in areas of dense agricultural development where, particularly where canals provide burrow habitat; forages primarily for rodents and insects within several miles of burrow, usually in open grassy habitats if available; has been observed hunting bats and insects around parking lot lights; threats include development resulting in habitat loss/fragmentation.	Yes	Suitable habitat is present at the proposed tank location at the northeast end of the Project. Nearest CNDDDB occurrence (EONDX 69905) was from 2006 and located approximately 4.2-miles southeast of the Project site. The record was for two adult burrowing owls and two burrows.
<i>Buteo swainsoni</i> Swainson's hawk	-/ST -/-	Occurs in grassland, desert and agricultural landscapes in the Central Valley and Antelope Valley; hawks may be resident or migrant; breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; also observed breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture; may nest on ground if no suitable trees are available; nests are platform of sticks, bark, and fresh leaves at or near top of trees; breeds from late March to late August; forages in grassland, open scrub, and grain fields, primarily for rodents.	Yes	Suitable habitat is present within the BSA and surrounding areas, and an active nest was observed within 0.5 mile of the Project during the reconnaissance survey. Nearest CNDDDB occurrence (EONDX 87267) is from 2008 and located approximately 8.5-miles southwest of the Project site.
<i>Empidonax traillii</i> willow flycatcher	-/SE -/-	Occupies areas with willows or other shrubs near standing or running water; primarily feeds	No	Suitable habitat is absent from the Project site. Nearest

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		on insects (e.g. bees, wasps, beetles, ants, butterflies, moths, and flies) that they catch midair or pick from leaves while hovering; nest built in a willow (sometimes box elder, hawthorn, bracken fern, dogwood, or tamarisk) approximately 2-5 feet above the ground; breeding occurs mostly outside of California with the exception of some areas along the coast, southeastern Mohave desert, and east of the Sierra Mountains.		CNDDDB occurrence (EONDX 16013) was from 1988 and located approximately 4.1-miles southeast of the Project site. The record was for one detected singing adult.
<i>Lanius ludovicianus</i> loggerhead shrike	-/ -/SSC	Common resident in lowlands and foothills throughout California; prefers open grassland/pasture habitats with scattered trees, fence posts, utility lines, shrubs, and other perches; primarily consumes large insects but will predator other small animals; nests in densely-foliaged shrub or tree less than 50 feet above ground.	No	Suitable habitat is absent from the Project site. Nearest CNDDDB occurrence (EONDX 87281) was from 1992 and located approximately 8.9-miles southwest of the Project site. The record was for at least one or more nesting loggerhead shrike(s).
<b>Mammals</b>				
<i>Lasiurus cinereus</i> hoary bat	-/ -/-	Can be found anywhere in California from sea level to 13,200 feet; winters on coast and in southern California; breeds inland and north of winter range; bear young in woodlands and forests; feeds primarily on moths; roosts in dense foliage of medium-large trees, typically at the edge of clearings; requires water; prefers open habits or habitat mosaics; maternity season from mid-May through early July; forages with other bat species; high incidence of rabies.	Yes	Marginal roosting habitat is present in the trees at residences surrounding the Project. Nearest CNDDDB occurrence (EONDX 69375) was from 1943 and located approximately 4.8-miles west of the Project site. The record was for two female hoary bats that were collected.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST -/-	Endemic to the Central Valley; found primarily in San Joaquin Valley, Carrizo Plain, Salinas Valley, Cuyama Valley, and other small valleys in western foothills; occurs in arid to semi-arid grasslands, open shrublands, savannahs, and	Yes	Suitable habitat is present on and around the Project. Nearest CNDDDB occurrence (EONDX 67545) was from 1972 and located

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		<p>grazed lands with loose-textured soils; highly adaptable and documented in urban developed areas; uses burrows year-round for shelter, escape from predators, and rearing young; will use man-made structures, such as pipes, for denning; feeds primarily on small mammals, but will also consume birds, reptiles, insects, and scavenge for human food; intensively-maintained agricultural areas avoided; threatened by habitat loss and fragmentation, vehicle strikes, and disease; current mangle outbreak in urban population in Bakersfield and in nearby natural areas.</p>		<p>approximately 4.0-miles southwest of the Project site. The record was for potential multiple kit fox sightings from 1972 to 1975.</p>

**APPENDIX D**  
**CULTURAL REPORT**

**PHASE I SURVEY/CLASS III INVENTORY,  
EAST OROSI COMMUNITY  
SERVICES DISTRICT PROJECT,  
TULARE COUNTY, CALIFORNIA**

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# TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
<b>MANAGEMENT SUMMARY .....</b>	<b>iii</b>
<b>1. INTRODUCTION AND REGULATORY CONTEXT .....</b>	<b>1</b>
1.1 PROJECT LOCATION .....	1
1.2 PROJECT DESCRIPTION AND APE .....	2
1.3 REGULATORY CONTEXT .....	2
1.3.1 California Environmental Quality Act .....	2
1.3.2 National Historic Preservation Act Section 106.....	3
<b>2. ENVIRONMENTAL AND CULTURAL BACKGROUND .....</b>	<b>7</b>
2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY .....	7
2.2 ETHNOGRAPHIC BACKGROUND .....	7
2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND.....	9
2.4 HISTORICAL BACKGROUND.....	12
2.5 RESEARCH DESIGN .....	14
2.5.1 Pre-Contact Archaeology .....	14
2.5.2 Historical Archaeology: Native American.....	16
2.5.3 Historical Archaeology: Euro-American.....	17
<b>3. ARCHIVAL RECORDS SEARCH.....</b>	<b>21</b>
3.1 ARCHIVAL RECORDS SEARCH.....	21
<b>4. METHODS AND RESULTS.....</b>	<b>23</b>
4.1 FIELD METHODS.....	23
4.2 SURVEY RESULTS .....	23
4.2.1 Bridge 46CD0221.....	25
4.2.1 Bridge on Avenue 416.....	25
4.2.1 Atchison, Topeka, and Santa Fe Railroad (P-54-004632/P-54-004016/P-54-002183).....	26
<b>5. CRHR/NRHP ELIGIBILITY EVALUATIONS AND CONCLUSIONS .....</b>	<b>29</b>
5.1 CRHR/NRHP ELIGIBILITY EVALUATIONS .....	29
<b>REFERENCES.....</b>	<b>31</b>
<b>CONFIDENTIAL APPENDICES .....</b>	<b>35</b>
<i>Confidential Appendix A: Records Search Results</i>	
<i>Confidential Appendix B: DPR Site Forms</i>	

## LIST OF FIGURES

	<b><u>Page</u></b>
Figure 1.	Location of the East Orosi CSD Project, Tulare County, California..... 5
Figure 2.	Overview of the Project APE, looking east along Florida Ave. .... 24
Figure 3.	Overview of the Project APE, looking west along Avenue 416 (East El Monte Avenue). .... 24
Figure 4.	Overview of the Project APE, looking south along Road 128. .... 25
Figure 5.	Overview of Bridge 46CD0221, looking northeast. .... 26
Figure 6.	Overview of Bridge on Avenue 416, looking southeast. .... 27
Figure 7.	Overview of Atchison, Topeka, and Santa Fe Railroad segment, looking east-northeast. Note the relay cabinet and electrical pole. .... 27
Figure 8.	Atchison, Topeka, and Santa Fe Railroad segment tracks within Avenue 416, planview ..... 28

## LIST OF TABLES

	<b><u>Page</u></b>
Table 1.	Previous Surveys within the APE. .... 21
Table 2.	Resources within the APE. .... 21
Table 3.	Previous Surveys within 0.5-mi of the APE. .... 21
Table 4.	Resources within 0.5-mi of the APE..... 22

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## MANAGEMENT SUMMARY

An intensive Phase I survey/Class III cultural resources inventory was conducted for the East Oroshi Community Services District Project (Project), Tulare County, California. The purpose of the Project is to improve the water services for the community of East Oroshi through the replacement of existing waterlines and water meters with 3.9-miles (mi) of new pipeline, new water meters and a well and storage tanks. ASM Affiliates, Inc., conducted this study, with David S. Whitley, Ph.D., RPA, serving as principal investigator. The study was undertaken to assist with compliance with the California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act of 1966, (NHPA) as amended.

The Area of Potential Effect (APE) was defined as the area of potential ground surface disturbance resulting from the installation of the new facilities, including access, work, lay-down and staging areas, plus a 15-meter (m) buffer. The Project horizontal APE totals approximately 39.5-acres (ac); the vertical APE is the maximum depth of excavation, estimated at 10-feet (ft).

A records search of site files and maps was obtained from the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield. According to the IC, two previous surveys had been completed within the APE, and a segment of one previously recorded linear historical resource was known to exist within it, the Atchison, Topeka and Santa Fe railroad grade (P-54-004632). Five previous surveys had been completed within 0.5-mi of the APE, and one additional previously recorded resource had been recorded within that same radius.

The Class III inventory/Phase I survey fieldwork was conducted on 1 December 2020 with parallel transects spaced at 15-meter intervals walked along the approximately 39.5-ac APE. Three cultural resources were identified within the APE: the segment of the previously recorded railroad grade; and two bridges that cross the Alta East Branch Canal. The railroad grade is a remnant of the historical Atchison, Topeka and Santa Fe rail line. The rail tracks are still present within the Avenue 416 roadway, but everything except the grade itself has been removed elsewhere, with the exception of a relay cabinet and electrical pole on the north side of Highway 416. This segment lacks all qualities of integrity and is recommended as not National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) eligible. Bridge 46CD221, on Fruitvale Avenue, was built in 1915 and has been determined not eligible for NRHP listing by Caltrans. We concur with that determination and recommend it as also not eligible for CRHR listing because it lacks association with a significant historical event or person and is a common property type without distinction with respect to design, construction and materials. The second bridge, just east of 13940 Avenue 416, is a concrete bridge embossed with the date "1968". It has not been previously evaluated for NRHP/CRHR eligibility or significance. Although it is marginally eligible for the age criterion for NRHP/CRHR listing, it is recommended as not eligible for either the NRHP or CRHR. It is not associated with an important historic event or person and is a common property type, again without distinction in terms of design, construction or materials. A Determination of No Effect and No Significant Impact for cultural resources is further recommended for the East Oroshi Community Services District Project.

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# 1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc., was retained by Quad Knopf, Inc. to conduct an intensive Phase I cultural resources survey/Class III inventory for the East Orosi Community Services District (CSD) Project (Project). This Project is located in the community of East Orosi and between Orosi and Cutler, Tulare County, California (Figure 1). The study was undertaken to assist with compliance with the California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources or historic properties do not occur as a result of project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the APE to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

David S. Whitley, Ph.D., RPA, served as principal investigator and the fieldwork was conducted by ASM Associate Archaeologist Robert Azpitarte, B.A.

This document constitutes a report on the Phase I survey/Class III inventory. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the APE.

## 1.1 PROJECT LOCATION

The East Orosi CSD Project is located within the communities of East Orosi and Orosi, Tulare County, California. The Project consists of two discontinuous linear areas along with a well site and tank facility. The larger portion is located within East Orosi. It includes the residential streets that make up this small community, with an extension west along Avenue 416 (East El Monte Avenue) toward the community of Orosi. The smaller linear portion extends south from Orosi along Highway 63 and then east along Avenue 408 on the north side of the community of Cutler. The proposed well site is located along Avenue 408 on the north side of Cutler. The proposed tank site is located on the east side of East Orosi along Ione Road. The Project is mainly located in residential areas and along roadways bordered by agricultural land and orchards.

More generally, the Project area is located on the open flats of the San Joaquin Valley and along the westernmost peripheries of the Sierra Nevada foothills. Elevation within the Project area, which is mostly flat, varies between approximately 370-ft and 400-ft above mean sea level (amsl).

## **1.2 PROJECT DESCRIPTION AND APE**

The purpose of the proposed Project is to improve the capacity and safety of the water infrastructure servicing the community of East Orosi. East Orosi currently receives water from two wells: Well 1 meets State water quality requirements while Well 2 does not. Both wells use a 40-year-old 4-inch and 6-inch asbestos concrete-covered water distribution system with customer service meters located on private property or private alleyways. The proposed Project will include the abandonment of the current Well 2 and installation of a new Well 2, the installation of a 250,000-gallon storage tank, replacement of the old asbestos concrete-covered distribution system, and the connection of the new components to the new and existing pipelines. Approximately 3.9-mi of new 6" pipeline will be installed, following existing public road right-of-ways (ROW). The new infrastructure will connect to the existing Orosi Public Utility District (OPUD) water system. The current residential service meters are unserviceable and will be replaced and updated to match the existing OPUD meters. New meter locations will be in front yards near the public ROWs.

The APE will contain all access, construction, staging, and lay-down areas for the Project, with a 15-m buffer surveyed during the inventory. The horizontal APE totals approximately 39.5-ac. The vertical APE, estimated at 10-ft, is the maximum depth of excavation for the Project.

## **1.3 REGULATORY CONTEXT**

### **1.3.1 California Environmental Quality Act**

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

- (A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- (B) Are associated with the lives of persons important in our past;
- (C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- (D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

### **1.3.2 National Historic Preservation Act Section 106**

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately-owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as “historical properties” that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

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

- (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
- (B) are associated with the lives of persons significant in our past; or
- (C) 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) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such

properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
- (b) A building or structure removed from its original location, but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- (c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
- (d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- (e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- (f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- (g) A property achieving significance within the past 50 years if it is of exceptional importance.  
(ACHP n.d.)



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## **2. ENVIRONMENTAL AND CULTURAL BACKGROUND**

### **2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY**

As noted above, the APE is located at between 370-ft and 400-ft elevation on the open flats of the San Joaquin Valley, in the communities of East Orosi and Orosi, Tulare County, California. The Project area is situated approximately 14.5-miles (mi) north of the Kaweah River. Stokes Mountain summit (2,177-ft amsl) is located approximately 4-mi southeast of the Project APE. This feature is a wide toe ridge extending west into the San Joaquin Valley, the western slopes of which have been modified to accommodate the Friant-Kern Canal.

Prior to the appearance of agriculture, starting in the nineteenth century, this location would have been prairie grasslands, grading into tree savannas as one continued into the foothills to the east (Preston 1981). Historically, and likely prehistorically, riparian environments would have been present along the drainages, waterways and marshes. The Project area and immediate surroundings have been farmed and grazed for many years and no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study area prior to cultivation.

A Caltrans geoarchaeological study that includes the Project area provides a guide for the likelihood of subsurface archaeological deposits within this 124,000-ac zone (Meyer et al. 2010). This study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A map was created from this information that ranked locations in 7 ordinal classes for sensitivity for buried soils, from Very Low to Very High. This map can be employed to provide a general measure of the potential for buried archaeological deposits in any given location.

The Project area falls within the far northern extent of the Kaweah River Delta. According to the Meyer et al. (2010) model, the Project APE has a very low potential for buried archaeological deposits. Buried sites and cultural resources are therefore considered to be unlikely within the Project APE

### **2.2 ETHNOGRAPHIC BACKGROUND**

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver

(1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

According to Kroeber (1925: Plate 47), the study area is located near the boundary of the Nutunutu and Chukamina Yokuts. No historic villages are recorded for this immediate area by Kroeber (1925) or by Latta (1977), with the recorded villages located adjacent to major streams and rivers. The Yokuts settlement pattern, nonetheless, was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

## **2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND**

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. Over 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake southwest of the study area, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like

projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7,500 to 4,000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4,000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3,800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmill culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam and Kitanemuk, may have moved into the region at that time (Sutton 2009, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall

Ranch near Valencia, appears to date to the Intermediate Period (W & S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3,500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W & S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W & S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W & S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W & S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1,500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent “mega-floods,” and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90% of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W & S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1,500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located northwest of the current study area, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-

sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

## **2.4 HISTORICAL BACKGROUND**

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted

ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state wide ‘No-Fence’ laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866. The 76 Land and Water Company was founded in 1882, named after State Senator and cattleman Thomas Fowler’s “76 Ranch,” which included significant holdings in the Project area. With the passage of the Wright Act in 1887, the legislature allowed the creation of bonded irrigation districts as public entities. The Alta Irrigation District (AID) was created in 1888 with bonds in the amount of \$676,000.00. The district purchased the 76 Land and Water Company canal system for \$410,000.00 (Grunsky 1898:24) and was one of the first irrigation districts formed in Tulare County (Preston 1981).

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Miller and Lux’s impact extended beyond Kern County, however. They recognized early-on that control of water would have important economic implications, and they played a major role in the water development of the state. They controlled, for example, over 100 miles of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (<http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/>).

With increasing demand, the Central Valley Project (CVP) was developed to supply water to Fresno, Tulare, and Kern counties. The United States Bureau of Reclamation (BOR) has prepared a Multiple Property Document for the CVP Historic Engineering Features outlining specific NRHP eligibility criteria for water conveyance structures that were developed as part of the CVP from 1937 to 1951 (Bailey 2010). Friant Dam, which created Millerton Lake, was completed as part of the CVP in 1942 and supplies water for the Friant-Kern and Madera Canals. The Friant-Kern Canal was constructed between 1945 and 1951 and is approximately 152 miles in length. The BOR has also determined that the Friant-Kern Canal is eligible for NRHP listing with a period of significance from 1945 to 1951 (Bailey 2006).

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift in the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great number of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

The communities of Orosi and East Orosi, as well as larger nearby towns such as Dinuba and Sultana, are a product of colonization and population growth associated with the development of the Kings River delta as an agricultural center. By the 1880s this region was densely settled with farming focusing on evergreen and deciduous orchards, and vineyards and grain. The Pacific Improvement Company, a railroad, platted a series of towns for development in 1888, including Orosi (“land of gold”). Central to this regional development was the creation of irrigation districts, especially the Alta Irrigation District, which was the first district created under the Wright Act of 1887 (Preston 1981). The District currently includes about 129,000-ac in Tulare, Fresno and Kings counties. It operates 250 miles of open canals and 75 miles of pipeline with water from the CVP and the Kings River (<http://www.altaid.org/about-alta-id-mainmenu-95>; accessed 12/5/2020).

## **2.5 RESEARCH DESIGN**

### **2.5.1 Pre-Contact Archaeology**

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from about 4,000 to 1,500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this

theme, accordingly, extends from about 4,000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in two general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; and at quartzite cobble exposures, often on hills or ridges;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and
- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of site in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of southern San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007), environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP eligibility under Criterion D, research potential.

### **2.5.2 Historical Archaeology: Native American**

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley “horse culture,” including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society’s economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of

history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

### **2.5.3 Historical Archaeology: Euro-American**

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified an evaluation matrix aiding determinations of eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways (gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows:

1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.
2. *Integrity* addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).
3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.
4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.

5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance (Caltrans 2007:209).

For agricultural sites, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associate values with major historical trends or individuals. Historical landscapes might also be considered.

Historical structures, which are most likely to be pertinent to the current study area, are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associate values with major historical trends or individuals, and C for potential design or engineering importance. Water conveyance systems comprise a particular sub-set of historical structures that are common in the region. Another common structure type would be bridges, associated with the NRHP theme of the engineering, design and construction of bridges between 1936 and 1970.

In the early twentieth century, adoption of large-scale projects by the state and federal governments increased the standardization of bridge design. By the mid-1930s, the size of vehicles and the volume of traffic resulted in a demand for change in bridge design and construction, particularly with the rise of the freeway system. State and local government engineers became responsible for new bridge design and construction. New designs included innovative freeway/interchange grade separations and double-deck viaducts. Technological advances from this period included developments in welding, concrete box girders, and pre-stressed concrete. By the early 1960s, the bridge department used computers primarily to assist with structural calculations when designing some bridges. Although computers helped the engineers achieve more accurate results, they were still extremely expensive to purchase and operate.

During the postwar period, bridge design was based on form following function. The Division of Highways Bridge Department designed bridge types for specific project characteristics, and while it was summated that cost was the best determination of bridge type selection, other considerations were to be made such as traffic accommodation.

California bridges built between 1936 and 1964 were constructed in steel, concrete, and timber. Concrete became the primary material used in bridge construction during the mid-twentieth century in California. Steel bridges were constructed, but by the 1950s, only about 20% of new bridges were designed in steel; 10% by the 1970s. Other types of bridges were also constructed during this time, but the material and design were not as popularly used such as suspension bridges, swing/lift bridges, and even timber bridges. The most popular bridge design was reinforced concrete bridges which were constructed in the form of slabs, tee beams, and girders. Slabs are rigid monolithic horizontal elements on which the roadway directly sits; concrete tee beams are concrete girders that have a “T” shape in section where the top of the girder helps form the road

surface; concrete girders are horizontal members situated beneath a bridge's deck, supported on either end and/or in the middle (JRP 2003).

Perhaps the most famous California bridge constructed during this time period is the Golden Gate Bridge (Caltrans Bridge No. 27 0052), which was constructed in 1937 over the San Francisco Bay. Other bridges that are either listed on the NRHP or were previously found eligible include the Yerba Buena Crossing (No. 34 0004) in District 4, constructed in 1936; the Rio Vista Bridge over the Sacramento River (No. 23 0024) in District 4, constructed in 1944; the Three Mile Slough (No. 24 0121) bridge in District 3, constructed in 1949; the Route 68/101 Separation (No. 44 0121) in District 5, constructed in 1954; the bridge at Cold Spring Canyon (No. 51 0037) in District 5, constructed in 1963; the bridge at Mulholland Drive (53 0739) in District 7, constructed in 1959; and the Vincent Thomas Bridge (No. 53 1471) in District 7, constructed in 1963; and the Friant-Madera Canal bridge (No. 41 0039), constructed in 1941 in District 6.

The period of significance for this historic context theme begins in 1936 when the size of vehicles and the volume of traffic increased, resulting in the demand for transportation improvements in road and bridge construction. Through the 1940s, 1950s and 1960s, changes in vehicle and road design were rampant. However, the period of significance ends in 1970, following recommended guidance for closing a period of significance 50 years ago when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

Following the framework established by Caltrans in its numerous historic contexts for historic bridge evaluations, a bridge is one of the property types that has the potential to reflect this theme and period. Bridges are inherently important to the communities that they serve, and a bridge must possess significance beyond that of a typical bridge in order to meet National Register Criterion C. Further, replacement bridges for earlier structures that had become structurally or functionally obsolete would be only an incremental improvement to the existing transportation infrastructure and would not be considered historically significant. Finally, Caltrans does not consider minor creek crossings and other small bridges would generally not represent significant transportation improvements. Bridges that are associated with Engineering, Design and Construction of Bridges, 1936-1970 will be eligible under NRHP Criterion C/CRHR Criterion 3 for their association with this significant theme if they are/have:

- bridge engineering innovation that permitted longer spans, greater loads, quicker construction, and/or cost savings; *and* have a high degree of innovation, boldness of application, and contribution to the overall aesthetics of the bridge;
- a Bailey truss bridge, which is a rare type of bridge in California, originally constructed during World War II to provide military transport of heavy tanks;
- an early freeway interchange constructed with a high degree of complexity and innovativeness in design;
- designed by a figure of acknowledged greatness in the field or by someone unknown whose workmanship is distinguishable from others by its style and quality *and* be a good example of that designer's work;

- the resource retains high overall integrity because of the high number of comparable examples. The property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

Prolific bridge construction in the mid-twentieth century result in a high threshold for eligibility under Criterion C/3 for the numerous extant examples of this property type. An eligible bridge must have a high degree of innovation in design, engineering, and/or aesthetics in order to be considered eligible for the NRHP and/or CRHR (JRP 2003).

Caltrans has assessed thousands of bridges statewide since the 1980s, and has two ongoing lists assessing historical significance for state bridges and local agency bridges (Caltrans 2014). Each bridge on these lists have been given a NRHP status designation, which are:

- 1- Listed on the NRHP.
- 2- Eligible for NRHP listing.
- 3- May be eligible for NRHP listing.
- 4- Unevaluated. (Generally, Category 4 bridges constructed before 1960 are associated with properties that have not yet been evaluated, such as railroads, canals, or potentially eligible historic roads.)
- 5- Ineligible for NRHP listing.

### 3. ARCHIVAL RECORDS SEARCH

#### 3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on any of them, an archival records search was obtained from the Southern San Joaquin Valley Information Center on 19 October 2020. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the IC, two previous surveys had been completed within the APE (Table 1), with one previously recorded resource was known to exist within it (Table 2). Five previous surveys had been completed within 0.5-mi of the APE (Table 3), and one additional previously recorded resource had been recorded within that same radius. Results of the records search are available in Confidential Appendix A.

**Table 1. Previous Surveys within the APE**

Report #	Year	Author(s)/Organization	Title
TU-00095	1980	Beck, Allen C./ Self-Help Enterprises	Archaeological Field Reconnaissance Report Summary for the East Orosi Wastewater Facility
TU-01017	2000	Hovey, Kevin and Tackett, Will/ California Department of Transportation	Negative Archaeological Survey Report to Construct Asphalt Concrete Overlay and Shoulder Backing on State Route 63 From Route 201 to Avenue 460 In Tulare County, California

**Table 2. Resources within the APE**

Primary #	Type	Description
P-54-004632	Structure	Historic rail grade

**Table 3. Previous Surveys within 0.5-mi of the APE**

Report #	Year	Author(s)/Organization	Title
TU-00524	1992	Varner, Dudley M./ Varner Associates	An Archaeological Study of a Parcel Near Orosi in Tulare County, California
TU-00569	1988	Weinberger, Gay	Cultural Resource Assessment of Spartan Homes In Orosi
TU-00992	1999	Varner, Dudley M./ Varner Associates	A Cultural Resource Study for the Cutler Village Housing Project, in the Cutler/Orosi Market Area, Tulare County, California
TU-01186	2003	Varner, Dudley M./ Varner Associates	A Cultural Resource Study for the Self-Help Enterprises Multi-Family Housing Project in Orosi, Tulare County, California
TU-01214	2004	Billat, Lorna/ EarthTouch, Inc.	Request for SHPO Review of FCC Undertaking: Cutler-Orosi/Tt-CA-1282B

**Table 4. Resources within 0.5-mi of the APE**

<b>Primary #</b>	<b>Type</b>	<b>Description</b>
P-54-004832	Structure	Historic transmission line

The previously recorded resource within the Project APE is a segment of the historical Atchison, Topeka and Santa Fe (ATSF) railroad grade, P-54-004632/P-54-004016/P-54-002183. The ATSF operated multiple district lines from 1898 to 1992 in the San Joaquin Valley. Segments of the ATSF have been recorded in Tulare, Fresno and Kern counties in 1995, 2001, 2007, 2009, and 2012. It has been previously recommended as not NRHP eligible.

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## 4. METHODS AND RESULTS

### 4.1 FIELD METHODS

An intensive Phase I survey/Class III inventory of the East Orosi CSD Project APE was conducted by ASM Associate Archaeologist Robert Azpitarte, B.A., on 1 December 2020. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for the inventory. These covered the entirety of the approximately 39.5-ac APE.

Photographs were taken of the Project area during the survey. All built environment resources that appear to have been constructed prior to 1969 were identified and photographed. GIS data points were taken of each cultural resource.

### 4.2 SURVEY RESULTS

The Project APE is open flat land surrounded by residential property, agricultural land, and undeveloped private land. The larger portion of the APE located within the community of East Orosi follows existing roads and is primarily located within a residential area (Figure 2). A western extension follows Avenue 416 (East El Monte Avenue) and is bordered on the north by undeveloped land, and on the south by orchards (Figure 3). The smaller portion of the APE extends south from Orosi along Highway 63 and west along Avenue 408 on the north side of Cutler. It is surrounded by orchards and other existing agricultural land as well as residential and community services buildings (Figure 4). In general, the APE has been heavily disturbed by past agricultural activities and road grading. Vegetation (introduced grasses, weeds) varied from low to high ground surface coverage. Transect spacing was narrowed in areas of denser vegetation to ensure survey at Class III inventory coverage, with special attention paid to rodent burrows, which might reveal subsurface deposits.

During the Phase I survey/Class III inventory, ASM recorded two bridges that cross the Alta East Branch Canal and a previously unrecorded segment of the Atchison, Topeka, and Santa Fe Railroad (P-54-006632/P-54-004016/P-54-002183). DPR Site Forms for each of the recorded resources are provided in Confidential Appendix B. Location and sketch maps for each resource area available in their respective records. Descriptions for these resources are provided below.

No additional cultural resources of any kind were identified within the Project APE.



**Figure 2. Overview of the Project APE, looking east along Florida Ave.**



**Figure 3. Overview of the Project APE, looking west along Avenue 416 (East El Monte Avenue).**



**Figure 4. Overview of the Project APE, looking south along Road 128.**

#### **4.2.1 Bridge 46CD0221**

This bridge crosses the Alta East Branch Canal (Figure 5). It is located on Fruitvale Avenue, just beyond its intersection with Avenue 416. It crosses the Alta East Branch Canal in a single, flat span, has an asphalt roadbed deck (likely supported by steel beams) and concrete abutments on both sides of the canal. The bridge has concrete parapets on both sides of the deck that are about 3-feet high. Both sides of each parapet have a row of three recessed panels as decoration. Concrete walkways bounded by pipe rails are present on both sides of the parapets. A pipeline is attached to the outside of one the two pipe rails (the existing pipeline that will be replaced by the proposed project). The ends of the parapets are embossed with “OROSI FARMS” on the south and “JULY 1915” on the north. According to the Caltrans (2014) *Structure Maintenance and Investigations: Historical Significance – Local Agency Bridges*, this bridge has been determined not eligible for NRHP eligible listing.

#### **4.2.2 Bridge on Avenue 416**

A second bridge on Avenue 416 crosses the Alta East Branch Canal (Figure 6). This bridge is also concrete with an asphalt roadbed, with a deck that is wide enough to include shoulders on both sides of the road. The bridge is a double span with a single, narrow concrete central pier. Concrete abutments are present on both sides of the canal. The bridge has concrete parapets on both sides of the deck. These are about 2-ft high. The ends of the parapets are embossed with “1968”, apparently representing the date of construction. Caltrans has not previously evaluated this resource for NRHP/CRHR eligibility.

### 4.2.3 Atchison, Topeka, and Santa Fe Railroad (P-54-006632/P-54-004016/P-54-002183)

The ATSF operated multiple district lines from 1898 to 1992 in the San Joaquin Valley. Segments of the ATSF have been recorded in Tulare, Fresno and Kern counties in 1995, 2001, 2007, 2009, and 2012. The segment recorded during the current survey is part of the Porterville-Orosi District of the ATSF, which extends from Minkler on the north to Ducor on the south. The Porterville-Orosi District line was initiated in 1913 by the Minkler Southern Railway Company (MSRC). The MSRC was a subsidiary of ATSF created in 1913 for the sole purpose of building the Porterville-Orosi District line ([http://www.gutowski.de/katalog-35/Einzellose/Atchison\\_Topeka.html](http://www.gutowski.de/katalog-35/Einzellose/Atchison_Topeka.html)).

The recorded segment crosses the APE at Avenue 416 (East El Monte Way) just west of Fruitvale Avenue and south of the Alta East Branch Canal. It measures 80-ft (north-south) by 30-ft (east-west). North of Avenue 416 the feature consists of the railway grade without tracks, ties, or ballast (Figure 7). The grade is the same height as the roadway and slightly elevated above the terrain on either side. The railway grade is currently occupied by a two-track dirt road and is overgrown by grasses. A relay cabinet (Feature 1) and electrical pole (Feature 2) associated with the railway grade are located just east of the grade on the north side of Avenue 416. The railroad tracks are still present within the roadway of Avenue 416 and were paved over at some point in the past (Figure 8). The railway on the south side of Avenue 416 has been completely removed and no evidence exists. There are currently orange groves where the continuation of the railway would have been.



**Figure 5. Overview of Bridge 46CD0221, looking northeast.**



**Figure 6. Overview of Bridge on Avenue 416, looking southeast.**



**Figure 7. Overview of Atchison, Topeka, and Santa Fe Railroad segment, looking east-northeast. Note the relay cabinet and electrical pole.**



**Figure 8.** Atchison, Topeka, and Santa Fe Railroad segment tracks within Avenue 416, planview.

## 5.3 CRHR/NRHP ELIGIBILITY EVALUATIONS AND CONCLUSIONS

An intensive Phase I survey/Class III cultural resources inventory was conducted for the East Orosi CSD Project, located in the community of East Orosi, Tulare County, California. A records search was conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. This indicated that the study area had not been previously surveyed, and that one cultural resource was known to exist within it, a segment of the Atchison, Topeka and Santa Fe railroad.

The Class III inventory/Phase I survey fieldwork was conducted on 1 December 2020 with parallel transects spaced at 15-meter intervals walked along the approximately 39.5-ac APE. Three cultural resources were identified within the APE: the segment of the previously recorded railroad grade; and two bridges that cross the Alta East Branch Canal.

### 5.1 CRHR/NRHP ELIGIBILITY EVALUATIONS

#### *Atchison, Topeka and Santa Fe Rail Line (P-54-006632/P-54-004016/P-54-002183)*

The railroad grade is a remnant of the historical Atchison, Topeka, and Santa Fe rail line. The rail tracks are still present within the Avenue 416 roadway, but all tracks, ties, and ballast have been removed elsewhere and only the grade remains. A relay cabinet and electrical pole are also present adjacent to the rail grade north of Highway 416. The segment is part of the Porterville-Orosi District line, which was begun in 1913 by the Minkler Southern Railway Company, a subsidiary of ATSF. Although the construction and early use of this railroad was a key contributor to an important historical event (Criterion A/1), this segment lacks integrity of materials, design, feeling, association and workmanship, and thus is unable to convey its significance. It is recommended as not NRHP or CRHR eligible as a result.

#### *Bridge 46CD0221, Fruitvale Avenue*

Bridge 46CD0221, on Fruitvale Avenue, is a single span concrete bridge crosses the Alta East Branch Canal. It was built in 1915 and it has been determined not eligible for NRHP listing by Caltrans. We concur with that determination and recommend it as also not eligible for CRHR listing because it lacks association with a significant historical event or person and is a common property type without distinction with respect to design, construction and materials.

#### *Bridge Near 13940 Avenue 416*

This resource, just east of 13940 Avenue 416, is a concrete bridge embossed with the date “1968”, presumably referencing its construction date. It has not been previously evaluated for NRHP/CRHR eligibility or significance. Although it marginally meets the age criterion for NRHP/CRHR listing, it is recommended as not eligible for either the NRHP or CRHR. It is not associated with an important historic event (Criterion A/1) or person (Criterion B/2), and is a

common property type, again without distinction in terms of design, construction or materials (Criterion C/3).

A Determination of No Effect and No Significant Impact for cultural resources is further recommended for the East Orosi Community Services District Project.

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## REFERENCES

Boyd, W.H.

- 1997 Lower Kern River Country 1850-1950: Wilderness to Empire. Kings River Press, Lemoore.

Caltrans

- 1999 *General Guidelines for Identifying and Evaluating Historic Landscapes*. Sacramento: Caltrans.
- 2000 *Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures*. Sacramento: Caltrans.
- 2007 *A Historical Context and Archaeological Research Design for Agricultural Properties in California*. Sacramento: Caltrans.
- 2008 *A Historical Context and Archaeological Research Design for Mining Properties in California*. Sacramento: Caltrans.

Cook, S. F.

- 1978 Historical Demography. In *Handbook of North American Indians, Volume 8, California*, R. F. Heizer, editor, pp. 91-98. Washington, D.C., Smithsonian Institute.

Driver, H.E.

- 1937 Cultural Element Distributions: VI, Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53-154. Berkeley

Elsasser, A.

- 1962 *Indians of Sequoia and Kings Canyon National Parks*. Three Rivers: Sequoia Natural History Association.

Fenenga, F.

- 1952 The Archaeology of the Slick Rock Village, Tulare County, California. *American Antiquity* 17:339-347.

Fredrickson, D.A. and J. Grossman

- 1977 A San Dieguito component at Buena Vista Lake, California. *Journal of California and Great Basin Anthropology* 4:173-190.

Gayton, A.H.

- 1930 Yokuts-Mono Chiefs and Shamans. *University of California Publications in American Archaeology and Ethnology* 24. Berkeley, 361-420.
- 1948 Yokuts and Western Mono Ethnography. *University of California Anthropological Records* 10:1-290. Berkeley.

Gifford, E.W. and W.E. Schenck

- 1926 Archaeology of the Southern San Joaquin Valley. *University of California Publications in American Archaeology and Ethnology* 23(1):1-122.

Harrington, John Peabody

n.d. Yokuts ethnographic notes. National Anthropological Archives.

Hewes, G.

1941 Archaeological reconnaissance of the central San Joaquin Valley. *American Antiquity* 7:123-133.

Horne, S.P.

1981 *The Inland Chumash: Ethnography, Ethnohistory and Archaeology*. Ph.D. dissertation, UCSB. University Microfilms, Ann Arbor.

Jones, T.L., G.M. Brown, L.M. Raab, J.L. McVickar, W.G. Spaulding, D.J. Kennett, A. York and P.L. Walker

1999 Demographic Crisis in Western North America during the Medieval Climatic Anomaly. *Current Anthropology* 40:137-170.

King, C., C. Smith and T. King

n.d. Archaeological Report Related to the Interpretation of Archaeological Resources Present at the Vasquez Rocks County Park. Report on file, UCLA AIC.

Kroeber, A.L.

1925 Handbook of the Indians of California. *Bureau of American Ethnology, Bulletin 78*. Washington, D.C.

Latta, F. F.

1977 *Handbook of the Yokuts Indians*. Bear State Books, Santa Cruz.

Moratto, M.

1984 *California Archaeology*. New York: Academic Press.

Morgan, W.A.

1914 *History of Kern County, California with Biographical Sketches*. Los Angeles: Historic Record Company.

Pacific Legacy, Inc.

2006 Southern San Joaquin Valley Oil Fields Comprehensive Study. Manuscript on file, BLM Bakersfield office.

Powers, Stephen

1971 The Yokuts Dance for the Dead. In R.F. Heizer and M.A. Whipple, editors, pp. 513-519, *The California Indians: A Source Book* (second edition). Berkeley, University of California Press (original 1877).

1976 *Tribes of California*. Berkeley, University of California Press (original 1877).

---

Preston, William L.

- 1981 *Vanishing Landscapes: Land and Life in the Tulare Lake Basin*. Berkeley, University of California Press.

Schiffman, R.A. and A.P. Garfinkel

- 1981 Prehistory of Kern County: An Overview. *Bakersfield College Publications in Archaeology, Number 1*.

Siefkin, Nelson

- 1999 Archaeology of the Redfeldt Mound (CA-KIN-66), Tulare Basin, California. M.A. Thesis, Department of Sociology and Anthropology, California State University, Bakersfield.

Sutton, M.Q.

- 1988a An Introduction to the Archaeology of the Western Mojave Desert, California. *Archives of California Prehistory, No. 14*. Salinas: Coyote Press.
- 1988b On the Late Prehistory of the Western Mojave Desert. *Pacific Coast Archaeological Society Quarterly* 24(1):22-29.
- 2009 People and Language: Defining the Takic Expansion into the Southern California. *Pacific Coast Archaeological Society Quarterly* 40(2, 3): 31-73.

W&S Consultants

- 2006 Phase II Test Excavations and Determinations of Significance for the Tejon Mountain Village Project, Kern County, California. Report on file, Tejon Ranch Company.

Wedel, W.

- 1941 Archaeological Investigations at Buena Vista Lake, Kern County, California. *Bureau of American Ethnology Bulletin* 130.

Whitley, D.S.

- 1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 2(1):89-113.
- 2000 *The Art of the Shaman: Rock Art of California*. Salt Lake City: University of Utah Press.

Whitley, D.S. and M.P. Beaudry

- 1991 Chiefs on the Coast: The Development of Complex Society in the Tiquisate Region in Ethnographic Perspective. *The Development of Complex Civilizations in Southeastern Mesoamerica*, W. Fowler, ed., pp. 101-120. Orlando: CRC Press.

Whitley, D.S., G. Gumerman IV, J. Simon and E. Rose

- 1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society Quarterly* 24(1):2-10.

Whitley, D.S., J. Simon and J.H.N. Loubser

- 2007 The Carrizo Collapse: Art and Politics in the Past. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, ed RL Kaldenberg, pp. 199-208. Ridgecrest: Maturango Museum Publication 20.

**CONFIDENTIAL APPENDICES:**

# **CONFIDENTIAL APPENDIX A**

## **Records Search Results**

**APPENDIX E**  
**GEOTECHNICAL REPORT**



**GEOTECHNICAL ENGINEERING INVESTIGATION REPORT  
EAST OROSI WATER TANK  
EAST OROSI, CALIFORNIA**

BSK PROJECT G20-158-11B

PREPARED FOR:

QK, INC.  
5080 CALIFORNIA AVENUE, SUITE 220  
BAKERSFIELD, CA 93309

August 25, 2020

**GEOTECHNICAL ENGINEERING INVESTIGATION REPORT  
EAST OROSI WATER TANK  
EAST OROSI, CALIFORNIA**

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## Table of Contents

1. INTRODUCTION.....	1
1.1. Planned Construction.....	1
1.2. Purpose and Scope of Services .....	1
2. FIELD INVESTIGATION AND LABORATORY TESTING .....	1
2.1. Field Exploration .....	1
2.2. Laboratory Testing .....	2
3. SITE AND GEOLOGY/SEISMICITY CONDITIONS .....	2
3.1. Site Description and Surface Conditions.....	2
3.2. Regional Geology and Seismic Hazards Assessment.....	2
3.2.1. Regional Geology .....	2
3.2.2. Seismic Hazards Assessment.....	2
3.3. Subsurface Conditions .....	3
3.4. Groundwater Conditions .....	3
4. CONCLUSIONS AND RECOMMENDATIONS.....	3
4.1. Seismic Design Criteria.....	4
4.2. Soil Corrosivity .....	5
4.3. Site Preparation Recommendations.....	5
4.4. Foundations.....	7
4.4.1. Shallow Foundations.....	7
4.4.2. Mat Foundations.....	7
4.5. Lateral Earth Pressures and Frictional Resistance .....	7
4.6. Trench Backfill and Compaction .....	8
4.7. Excavation Stability.....	9
4.8. Drainage Considerations.....	9
5. PLANS AND SPECIFICATIONS REVIEW.....	9
6. CONSTRUCTION TESTING AND OBSERVATIONS .....	9
7. LIMITATIONS .....	10
8. REFERENCES.....	10



## Tables

Table 1: Seismic Design Parameters

Table 2: Recommended Static Lateral Earth Pressures for Footings

## Appendices

### Appendix A: Field Exploration

Table A-1:	Consistency of Coarse-Grained Soil by Sampler Blow Count
Table A-2:	Apparent Relative Density of Fine-Grained Soil by Sampler Blow Count
Figure A-1:	Site Vicinity Map
Figure A-2:	Boring Location Map
Figure A-3:	Soil Classification Chart and Key to Test Data
Boring Logs:	Borings B-1 through B-3

### Appendix B: Laboratory Testing

Table B-1:	Summary of Corrosion Test Results
Table B-2:	Summary of Minus #200 Wash Test Results
Figure B-1:	Direct Shear Test Results
Figure B-2:	Collapse Potential Test Results
Figure B-3:	Expansion Index Test Results



## 1. INTRODUCTION

This report presents the results of a Geotechnical Engineering Investigation conducted by BSK Associates (BSK), for the proposed East Orosi Community Services District Water Tank Project in East Orosi, California (Site). The Site is located in a lot near the intersection of Florida Avenue and Lone Road in East Orosi, CA, as shown on the Site Vicinity Map, Figure A-1. The geotechnical engineering investigation was conducted in accordance with revised BSK Proposal GB20-20051, dated May 6, 2020.

This report provides a description of the geotechnical conditions at the Site and provides specific recommendations for the planned improvements at the Site. In the event that changes occur in the design of the project, this report's conclusions and recommendations will not be considered valid unless the changes are reviewed with BSK and the conclusions and recommendations are modified or verified in writing.

### 1.1. Planned Construction

BSK understands the Site will be located southeast of the intersection of Florida Avenue and Lone Road. BSK understands that the project will consist of one water storage tank approximately 60 feet in diameter, booster pumps, and the relocation of an existing trailer.

In the event that significant changes occur in the design of the proposed improvements, this report's conclusions and recommendations will not be considered valid unless the changes are reviewed with BSK and the conclusions and recommendations are modified or verified in writing.

### 1.2. Purpose and Scope of Services

The objective of this geotechnical investigation was to characterize the subsurface conditions in the areas of the proposed structures, and provide geotechnical engineering recommendations for the preparation of plans and specifications and bearing and lateral earth pressure conditions. The scope of the investigation included a field exploration, laboratory testing, engineering analyses, and preparation of this report.

## 2. FIELD INVESTIGATION AND LABORATORY TESTING

### 2.1. Field Exploration

The field exploration for this investigation was conducted under the oversight of a BSK staff member. Three (3) total borings were drilled at the Site to a maximum depth of 41.5 feet beneath the existing ground surface (bgs) on August 7, 2020 using a CME-75 Hollow Stem Auger Drill Rig provided by Baja Exploration.

The soil materials encountered in the Borings were visually classified in the field, and the logs were recorded during the drilling and sampling operations. Visual classifications of the materials encountered in the borings were made in general accordance with the Unified Soil Classification System (ASTM D 2488). A soil classification chart is presented in Appendix A.



Boring logs are presented in Appendix A and should be consulted for more details concerning subsurface conditions. Stratification lines were approximated by the field staff based on observations made at the time of drilling, while the actual boundaries between soil types may be gradual and soil conditions may vary at other locations.

## **2.2 Laboratory Testing**

Laboratory tests were performed on selected soil samples to evaluate moisture content, dry density, shear strength, collapse potential, expansion index, and fines content. A description of the laboratory test methods and results are presented in Appendix B.

## **3. SITE AND GEOLOGY/SEISMICITY CONDITIONS**

The following sections address the Site descriptions and surface conditions, regional geology and seismic hazards, subsurface conditions, and groundwater conditions at the Site. This information is based on BSK's field exploration and published maps and reports.

### **3.1 Site Description and Surface Conditions**

The Site currently exists in a lot at the intersection Florida Avenue and Lone Road in East Orosi, California that is partially occupied by a trailer that will be relocated to the location of Boring B-3. QK, Inc. also provided details of existing structures at the site. A septic tank is located approximated on the south side of the trailer between Borings B-1 and B-2. Light poles, an electrical drop, and an old hydromatic tank pad are located south of the trailer near Boring B-2. A water valve that appears to align with the old tank pad is located west of the trailer. Lastly, an abandoned test well is located approximately 115 feet south-southwest of the trailer near Boring B-3. The surface is currently a dirt field. The Site is located in the northeast quarter of the southwest quarter of Section 9, Township 16 South, Range 25 East of the Mount Diablo Meridian. The WGS84 coordinates are 36.5488 degrees North latitude and 119.2603 degrees West longitude.

### **3.2 Regional Geology and Seismic Hazards Assessment**

Our Scope of services included a review of published maps and reports to assess the regional geology and potential for seismic hazards.

#### *3.2.1 Regional Geology*

The Site is located in the Great Valley geomorphic province. The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor.

#### *3.2.2 Seismic Hazards Assessment*

The types of geologic and seismic hazards assessed include surface ground fault rupture, liquefaction, seismically induced settlement, slope failure, flood hazards and inundation hazards.



The purpose of the Alquist-Priolo Geologic Hazards Zones Act, as summarized in CDMG Special Publication 42 (SP 42), is to "prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." As indicated by SP 42, "the State Geologist is required to delineate "earthquake fault zones" (EFZs) along known active faults in California. Cities and counties affected by the zones must regulate certain development 'projects' within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

The site is not located in a Alquist-Priolo (A-P) Fault Hazard Zone. The closest A-P Hazard Zone is associated with the Southern Sierra Nevada fault zone, Independence section located approximately 55 miles northeast of the site and the San Andreas fault zone approximately 79 miles southwest of the site.

Zones of Required Investigation referred to as "Seismic Hazard Zones" in CCR Article 10, Section 3722, are areas shown on Seismic Hazard Zone Maps where site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. There are no mapped areas that have Seismic Hazard Zones in the project area.

### **3.3 Subsurface Conditions**

At the Site, the subsurface material generally consisted of silts with sand and clay in the upper 5 feet. Below 5 feet, the subsurface material varied from of sands, silts, and clays throughout to the bottom of the borehole.

The upper 5 feet of on-site soil is considered to have a low expansion potential with an expansion index of 25 at Boring B-1.

The boring logs in Appendix A provide a more detailed description of the materials encountered, including the applicable Unified Soil Classification System symbols.

### **3.4 Groundwater Conditions**

Groundwater was not encountered at the Site on August 7, 2020. Based on the groundwater elevation data from the California Department of Water Resources (DWR), the historic high groundwater depth in the vicinity was recorded to be 7.2 feet bgs on February 2, 1970 from State Well 16S25E08J001M located approximately 0.5 miles northwest of the site.

Please note that the groundwater level may fluctuate both seasonally and from year to year due to variations in rainfall, temperature, pumping from wells and possibly as the result of other factors such as irrigation, that were not evident at the time of our investigation.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the soil conditions would not preclude the construction of the proposed improvements.



#### 4.1 Seismic Design Criteria

Based on Section 1613.2.2 of the 2019 CBC, the project Site shall be classified as Site Class A, B, C, D, E or F based on the Site soil properties and in accordance with Chapter 20 of ASCE 7-16. Based on the “N” values from our soil Borings, as per Table 20.3-1 of ASCE 7-16, the Site is Class D ( $15 < N < 50$ ).

The 2019 California Building Code (CBC) utilizes ground motion based on the Risk-Targeted Maximum Considered Earthquake ( $MCE_R$ ) that is defined in the 2019 CBC as the most severe earthquake effects considered by this code, determined for the orientation that results in the largest maximum response to horizontal ground motions and with adjustment for targeted risk. Ground motion parameters in the 2019 CBC are based on ASCE 7-16, Chapter 11.

The Structural Engineers Associates of California (SEAOC) has prepared maps presenting the Risk-Targeted MCE spectral acceleration (5 percent damping) for periods of 0.2 seconds ( $S_s$ ) and 1.0 seconds ( $S_1$ ). The values of  $S_s$  and  $S_1$  can be obtained from the Occupational Safety Health Planning and Development (OSHPD) Seismic Design Maps Tool at: <https://seismicmaps.org/>.

Table 1 below presents the spectral acceleration parameters produced for an assumed Site Class D by OSHPD Seismic Design Maps Application and Chapter 16 of the 2019 CBC based on ASCE 7-16.

Table 1: Seismic Design Parameters			
Seismic Design Parameter	2019 CBC Value		Reference
MCE Mapped Spectral Acceleration (g)	$S_s = 0.481$	$S_1 = 0.200$	USGS Mapped Value
Amplification Factors (Site Class D)	$F_a = 1.415$	$F_v = \text{null}^1(2.200)$	ASCE Table 11.4
Site Adjusted MCE Spectral Acceleration (g)	$S_{MS} = 0.681$	$S_{M1} = \text{null}^1(0.440)$	ASCE Equations 11.4.1-2
Design Spectral Acceleration (g)	$S_{DS} = 0.454$	$S_{D1} = \text{null}^1(0.293)$	ASCE Equations 11.4.3-4
Geometric Mean PGA (g)	$PGA_M = 0.289$		Section 11.8.3, ASCE 7-16
Site Short Period – $T_s$ (seconds)	$T_s = 0.646$		$T_s = SD1/ SDS$
Site Long Period – $T_L$ (seconds)	$T_L = 12$		USGS Mapped Value

Notes: <sup>1</sup> Requires site-specific ground motion procedure or exception as per ASCE 7-16 Section 11.48.

<sup>2</sup> Values from ASCE 7-16 supplement, shall only be used to calculate  $T_s$

As shown above, the short period design spectral response acceleration coefficient,  $S_{DS}$ , is greater than 0.50, therefore the Site lies in Seismic Design Category D as specified in Section 1613.3.5 of the 2019 CBC. The long period spectral response acceleration coefficient determined from the Site-Specific Ground Motion Analysis,  $S_1$ , is less than 0.75, therefore the Site lies in Seismic Design Category D, based on Risk Category III. When  $S_1$  is greater than or equal to 0.75g the Seismic Design Category is E for buildings in Risk Categories I, II, and III, and F for those in Risk Category IV.



## 4.2 Soil Corrosivity

Surface soil samples obtained from the Site were tested to provide a preliminary screening of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts. The test results are presented in Appendix B.

The corrosivity evaluation was performed by BSK on soil samples obtained at the time of drilling. The soil was evaluated for minimum resistivity (ASTM G57), pH (ASTM D4972), and soluble sulfate and chlorides (CT 417 and CT 422). At Boring B-1, the minimum resistivity was 2,200 ohm-cm, pH was 6.40, sulfate was not detected and chloride was detected at 25 parts per million. At Boring B-3, the minimum resistivity was 2,000 ohm-cm, pH was 6.27, sulfate and chloride were not detected.

The water-soluble sulfate content severity class is considered negligible to concrete (Exposure Category S0 per Table 19.3.1.1 of ACI 318-14). Representative samples of the Site soil have a minimum resistivity between 2,000 ohm-cm and 2,200 which is considered severely corrosive to buried metal conduit. Therefore, buried metal conduits, ferrous metal pipes, and exposed steel should have a protective coating in accordance with the manufacturer's specification.

## 4.3 Site Preparation Recommendations

The following procedures must be implemented during Site preparation for the proposed earthwork operations. References to maximum dry density, optimum moisture content, and relative compaction are based on ASTM D 1557 (latest test revision) laboratory test procedures.

1. The areas of proposed improvements must be cleared of surface vegetation and debris. Materials resulting from the clearing and stripping operations must be removed and properly disposed of off-site. In addition, all undocumented fills should be removed where encountered and where fills or structural improvements will be placed.
2. Where existing utilities, inlets, or underground tanks are present, they should be removed to a point at least 2 feet horizontally outside the proposed foundation areas. Resultant cavities must be backfilled with engineered fill compacted in accordance with the recommendations presented in this report.
3. Following the stripping operations, the areas where shallow foundations are proposed must be overexcavated to a minimum depth of one foot below existing site grades or one foot below the bottom of the footing elevation, whichever is deeper. Over excavation should extend laterally three feet beyond the edge of foundations for shallow footings. After overexcavation, the bottom of the exposed soil should be scarified 8 inches, moisture conditioned to near optimum moisture content, and compacted to 90% of ASTM D1557. We recommend that non-expansive soil ( $EI < 20$ ) be used below the bottom of shallow foundations.
4. For ring wall tank foundations, BSK recommends overexcavation to a minimum depth of two feet below existing site grades or two feet below the bottom of the footing elevation, whichever is deeper. Because of the expansive material ( $EI > 20$ ) found at the Storage Tank Site, either low expansive ( $EI < 20$ ) select onsite soils or low expansive ( $EI < 20$ ) import engineered fill should be placed below the ring wall foundations. Over excavation should extend laterally three feet beyond



the edge of the ring wall foundations. After overexcavation, the bottom of the exposed soil should be scarified 8 inches, moisture conditioned to near optimum moisture content, and compacted to 90% of ASTM D1557. Yielding areas should be observed by the geotechnical consultant and removed or recompacted if necessary.

5. Following the required stripping and overexcavation, in the areas of proposed shallow foundations, the exposed ground surface at the bottom of the overexcavation must be inspected by a Geotechnical Engineer to evaluate if loose or soft zones are present that will require additional overexcavation.
6. Screening of oversize material should be anticipated if native soils are planned for use as trench backfill or engineered fill.
7. Imported soil or native excavated soils, free of organic materials or deleterious substances, may be placed as compacted engineered fill. The material must be free of oversized fragments greater than 3-inches in greatest dimension. Engineered fill must be placed in uniform layers not exceeding 8-inches in loose thickness, moisture conditioned to within 2 to 4 percent above optimum moisture content, and compacted to at least 90 percent relative compaction. Engineered fill placed on fill slopes must be placed in uniform layers not exceeding 8-inches in loose thickness, moisture conditioned to near optimum moisture content, and compacted to at least 90 percent of relative compaction.
8. BSK must be called to the site to verify the import material properties through laboratory testing.
9. If possible, backfill operations should be scheduled during a dry, warm period of the year. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a “pumping” condition. This condition is caused by excess moisture in combination with moving construction equipment, resulting in saturation and zero air voids in the soils. If this condition occurs, the adverse soils will need to be over-excavated to the depth at which stable soils are encountered, and replaced with suitable soils compacted as engineered fill. Alternatively, the Contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which should be subject to review and approval by BSK prior to implementation.
10. Import fill materials must be free from organic materials or deleterious substances. The project specifications must require the contractor to contact BSK to review the proposed import fill materials for conformance with these recommendations at least one week prior to importing to the Site, whether from on-site or off-site borrow areas. Imported fill soils must be non-hazardous and derived from a single, consistent soil type source conforming to the following criteria:

Plasticity Index:	< 12
Expansion Index:	< 20 (Very Low Expansion Potential)
Maximum Particle Size:	3 inches
Percent Passing #4 Sieve:	65 - 100
Percent Passing #200 Sieve:	20 - 45
Low Corrosion Potential:	Soluble Sulfates < 1,500 ppm Soluble Chlorides < 150 ppm Minimum Resistivity > 3,000 ohm-cm



#### 4.4 Foundations

Provided the recommendations contained in this report are implemented during design and construction, it is our opinion that the structures can be supported on shallow or mat foundations. A structural engineer should evaluate reinforcement and embedment depth based on the requirements for the structural loadings, shrinkage and temperature stresses, and soil conditions present at the site.

##### 4.4.1 Shallow Foundations

Continuous and isolated spread footings must have a minimum width of 12 inches and 24 inches, respectively and a minimum depth of footing of 18 inches. Continuous and isolated spread footing foundations may be designed using a net allowable bearing pressure of 3,000 pounds per square foot (psf). The net allowable bearing pressure may be increased by 1/3 where used with the alternative basic load combinations of CBC Section 1605A.3.2 that include wind or earthquake loads.

Total foundation settlements for lightly loaded structures are expected to be less than one-half inch and differential settlements between similarly loaded (DL + LL) and sized footings are anticipated to be less than one-quarter inch. Differential settlement of continuous footings, expressed in terms of angular distortion, is estimated to be approximately 1/600. The majority of the settlement is expected to occur within a few months after the design loads are applied.

Total foundation settlements for tank ring foundations are expected to be less than one inch and differential settlements between similarly loaded (DL + LL) and sized footings are anticipated to be less than one-half inch. Differential settlement of continuous footings, expressed in terms of angular distortion, is estimated to be approximately 1/300. The majority of the settlement is expected to occur within a few months after the design loads are applied.

##### 4.4.2 Mat Foundations

We understand that structures may be supported on concrete mat foundations. The mat foundation may be designed to impose a maximum allowable pressure of 3,000 psf due to dead plus live loads. This value may be increased by one-third for transient loads such as seismic or wind. The concrete mat foundation should be embedded at least 8 inches below the lowest adjacent grade.

Settlements: Based on the results of our laboratory tests and analyses, total static settlements of the mat foundation under the allowable bearing pressure are expected to be approximately 1-inch, and maximum differential settlements are expected to be about 1/2-inch.

#### 4.5 Lateral Earth Pressures and Frictional Resistance

Provided the Site is prepared as recommended above, the following earth pressure parameters for footings may be used for design purposes. The parameters shown in the table below are for drained conditions of select engineered fill or undisturbed native soil.



<b>Lateral Pressure Condition</b>	<b>Equivalent Fluid Density (pcf) Drained Condition</b>
Active Pressure	30
At Rest Pressure	50
Passive Pressure	420

The lateral earth pressures listed herein are obtained by the conventional equation for active, at rest, and passive conditions assuming level backfill and a bulk unit weight of 125 pcf for the Site soils. A coefficient of friction of 0.40 may be used between soil sub-grade and the bottom of footings.

The coefficient of friction and passive earth pressure values given above represent ultimate soil strength values. BSK recommends that a safety factor consistent with the design conditions be included in their usage in accordance with Sections 1806.3.1 through 1806.3.3 of the 2019 CBC.

#### **4.6 Trench Backfill and Compaction**

A minimum of 6 inches of bedding material is recommended for pipe installations. The bedding material and backfill within the pipe envelope (up to 12 inches above the pipe) should consist of sandy material with not more than 10 percent passing the #200 sieve, 100 percent passing the 3/8-inch sieve, and a sand equivalent of at least 30.

Bedding and pipe envelope must be placed in loose thickness not exceeding 10-inches and compacted to at least 90 percent of the maximum dry density of ASTM D1557. Soil backfill moisture content during compaction must be maintained within two percent (2 percent) of optimum. Water jetting to attain compaction should not be allowed. Class 2 Aggregate Base, when used for bedding or pipe envelope must be compacted to at least 92 percent of ASTM D1557.

Processed on-Site soils, which are free of organic material, are suitable for use as general trench backfill above the pipe envelope. Native soil with particles less than three inches in the greatest dimension may be incorporated into the backfill and compacted as specified above, provided they are properly mixed into a matrix of friable soils. The backfill must be placed in thin layers not exceeding 12 inches in loose thickness, be well-blended and consistent texture, moisture conditioned to at least optimum moisture content, and compacted to at least 90 percent of the maximum dry density as determined by the ASTM D1557. The uppermost 12 inches of trench backfill below pavement sections must be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. Moisture content within two percent of optimum must be maintained while compacting this upper 12 inch trench backfill zone.

We recommend that trench backfill be tested for compliance with the recommended Relative Compaction and moisture conditions. Field density testing should conform to ASTM Test Methods D1556 or D6938. We recommend that field density tests be performed in the utility trench bedding, envelope and backfill for every vertical lift, at an approximate longitudinal spacing of not greater than 150 feet. Backfill that



does not conform to the criteria specified in this section should be removed or reworked, as applicable over the trench length represented by the failing test so as to conform to BSK recommendations.

#### **4.7 Excavation Stability**

Soils encountered within the depth explored are generally classified as Type C soils in accordance with OSHA (Occupational Safety and Health Administration). The slopes surrounding or along temporary excavations may be vertical for excavations that are less than five feet deep and exhibit no indication of potential caving, but should be no steeper than 1.5H:1V for excavations that are deeper than five feet, up to a maximum depth of 15 feet. Certified trench shields or boxes may also be used to protect workers during construction in excavations that have vertical sidewalls and are greater than 5 feet deep. Temporary excavations for the project construction should be left open for as short a time as possible and should be protected from water runoff. In addition, equipment and/or soil stockpiles must be maintained at least 10 feet away from the top of the excavations. Because of variability in soils, BSK must be afforded the opportunity to observe and document sloping and shoring conditions at the time of construction. Slope height, slope inclination, and excavation depths (including utility trench excavations) must in no case exceed those specified in local, state, or federal safety regulations, (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations).

#### **4.8 Drainage Considerations**

The control surface drainage in the project areas is an important design consideration. BSK recommends that final grading around shallow foundations must provide for positive and enduring drainage away from the structures, and ponding of water must not be allowed around, or near the shallow foundations. Ground surface profiles next to the shallow foundations must have at least a 2 percent gradient away from the structures.

### **5. PLANS AND SPECIFICATIONS REVIEW**

BSK recommends that it be retained to review the draft plans and specifications for the project, with regard to drilling operations and earthwork, prior to their being finalized and issued for construction.

### **6. CONSTRUCTION TESTING AND OBSERVATIONS**

Geotechnical testing and observation during construction is a vital extension of this geotechnical investigation. BSK recommends that it be retained for those services. Field review during Site preparation and drilling allows for evaluation of the exposed soil conditions and confirmation or revision of the assumptions and extrapolations made in formulating the design parameters and recommendations. BSK recommends periodic site visits and testing during backfill operations and full-time observation during drilling and pipe boring and jacking operations.

If a firm other than BSK is retained for these services during construction, then that firm must notify the owner, project designers, governmental building officials, and BSK that the firm has assumed the responsibility for all phases (i.e., both design and construction) of the project within the purview of the geotechnical engineer. Notification must indicate that the firm has reviewed this report and any subsequent addenda, and that it either agrees with BSK's conclusions and recommendations, or that it will provide independent recommendations.



## 7. LIMITATIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the Borings performed at the locations shown on the Boring Location Map, Figure A-2. The report does not reflect variations which may occur between or beyond the Borings. The nature and extent of such variations may not become evident until construction is initiated. If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-Site observations during the excavation period and noting the characteristics of the variations.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observation program during the construction phase. BSK assumes no responsibility for construction compliance with the design concepts or recommendations unless it has been retained to perform the testing and observation services during construction as described above.

The findings of this report are valid as of the present. However, changes in the conditions of the Site can occur with the passage of time, whether caused by natural processes or the work of man, on this property or adjacent property. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation, governmental policy or the broadening of knowledge.

BSK has prepared this report for the exclusive use of the Client and members of the project design team. The report has been prepared in accordance with generally accepted geotechnical engineering practices which existed in Tulare County at the time the report was written. No other warranties either expressed or implied are made as to the professional advice provided under the terms of BSK's agreement with Client and included in this report.

## 8. REFERENCES

Department of Water Resources. <http://www.water.ca.gov/waterdatalibrary/>, Water Data Library, August 2020.

Earth Point. <http://earthpoint.us/townships.aspx>, Public Land Survey System, Google Earth, 2020, August 2020.

Lee, Norman. California Geomorphic Provinces (2012): n. pag. California Department of Conservation. California Geological Survey. August 2020  
<[http://www.conservation.ca.gov/cgs/information/publications/cgs\\_notes/note\\_36/Documents/note\\_36.pdf](http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_36/Documents/note_36.pdf)>.

OSHPD Seismic Design Maps. SEAOC. <https://seismicmaps.org/>, August 2020.



**APPENDIX A**  
**FIELD EXPLORATION**



## APPENDIX A

### FIELD EXPLORATION

The field exploration for this investigation was conducted under the oversight of a BSK staff member. Three (3) total borings were drilled at the Site to a maximum depth 41.5 feet beneath the existing ground surface (bgs) on August 7, 2020 using a CME-75 Hollow Stem Auger Drill Rig provided by Baja Exploration.

The soil materials encountered in the test borings were visually classified in the field, and the logs were recorded during the drilling and sampling operations. Visual classification of the materials encountered in the test borings was made in general accordance with the Unified Soil Classification System (ASTM D 2488). A soil classification chart is presented herein. Boring logs are presented herein and should be consulted for more details concerning subsurface conditions. Stratification lines were approximated by the field staff based on observations made at the time of drilling, while the actual boundaries between soil types may be gradual and soil conditions may vary at other locations.

Subsurface samples were obtained at the successive depths shown on the boring logs by driving samplers which consisted of a 2.5-inch inside diameter (I.D.) California Sampler and a 1.4-inch I.D. Standard Penetration Test (SPT) Sampler. The samplers were driven 18 inches using a 140-pound hammer dropped from a height of 30 inches by means of either an automatic hammer or a down-hole safety hammer. The number of blows required to drive the last 12 inches was recorded as the blow count (blows/foot) on the boring logs. The relatively undisturbed soil core samples were capped at both ends to preserve the samples at their natural moisture content. Soil samples were also obtained using the SPT Sampler lined with metal tubes or unlined in which case the samples were placed and sealed in polyethylene bags. At the completion of the field exploration, the test borings were backfilled with the excavated soil cuttings.

It should be noted that the use of terms such as “loose”, “medium dense”, “dense” or “very dense” to describe the consistency of a soil is based on sampler blow count and is not necessarily reflective of the in-place density or unit weight of the soils being sampled. The relationship between sampler blow count and consistency is provided in the following Tables A-1 and A-2 for coarse-grained (sandy and gravelly) soils and fine grained (silty and clayey) soils, respectively.

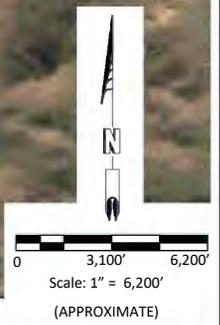
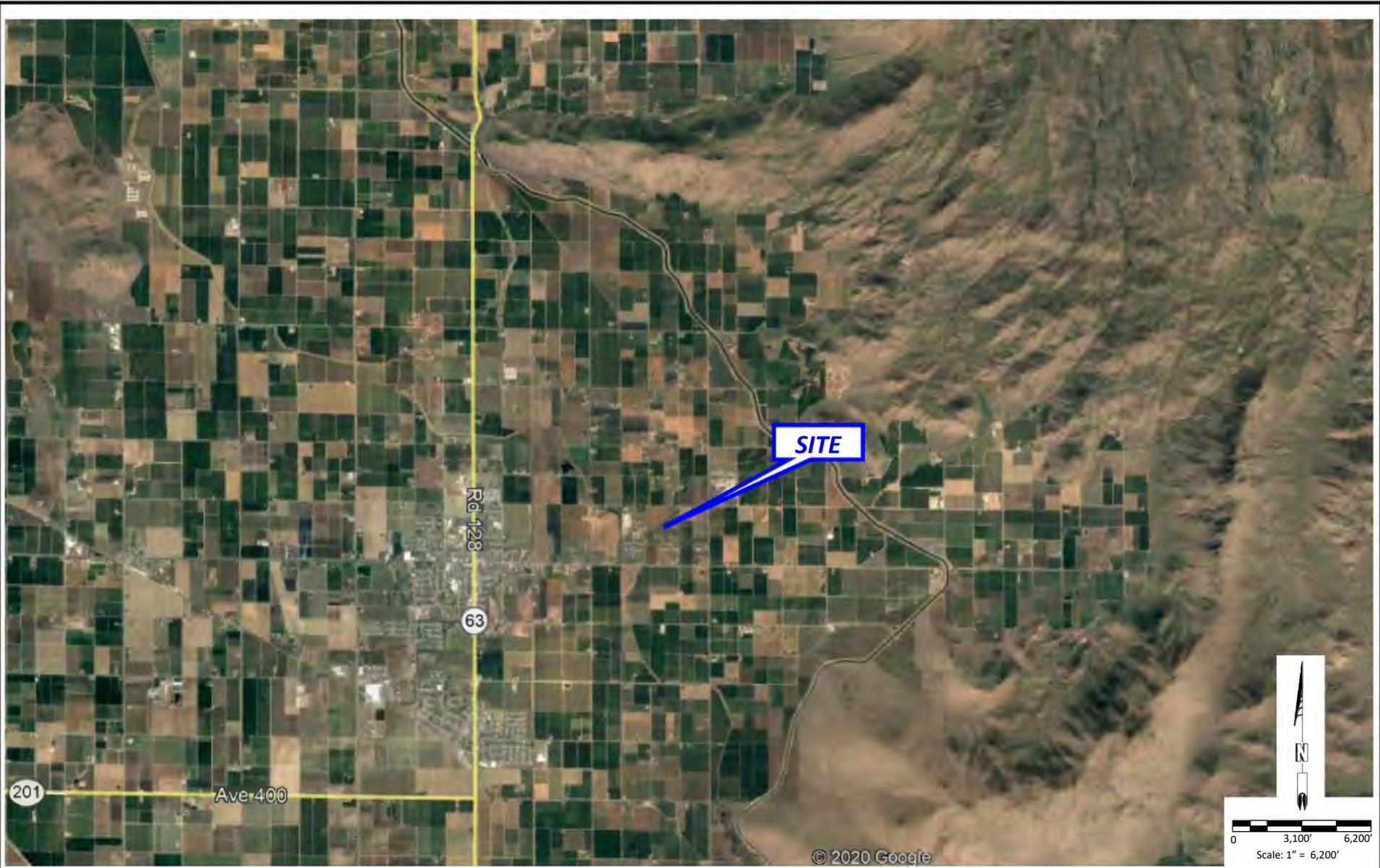


**Table A-1: Consistency of Coarse-Grained Soil by Sampler Blow Count**

<b>Consistency Descriptor</b>	<b>SPT Blow Count (#Blows / Foot)</b>	<b>2.5" I.D. California Sampler Blow Count (#Blows / Foot)</b>
Very Loose	<4	<6
Loose	4 – 10	6 – 15
Medium Dense	10 – 30	15 – 45
Dense	30 – 50	45 – 80
Very Dense	>50	>80

**Table A-2: Apparent Relative Density of Fine-Grained Soil by Sampler Blow Count**

<b>Consistency Descriptor</b>	<b>SPT Blow Count (#Blows / Foot)</b>	<b>2.5" I.D. California Sampler Blow Count (#Blows / Foot)</b>
Very Soft	<2	<3
Soft	2 – 4	3 – 6
Firm	4 – 8	6 – 12
Very Firm	8 – 15	12 – 24
Hard	15 – 30	24 – 45
Very Hard	>30	>45



REFERENCE IMAGE: Google Earth 2020

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**SITE VICINITY MAP**

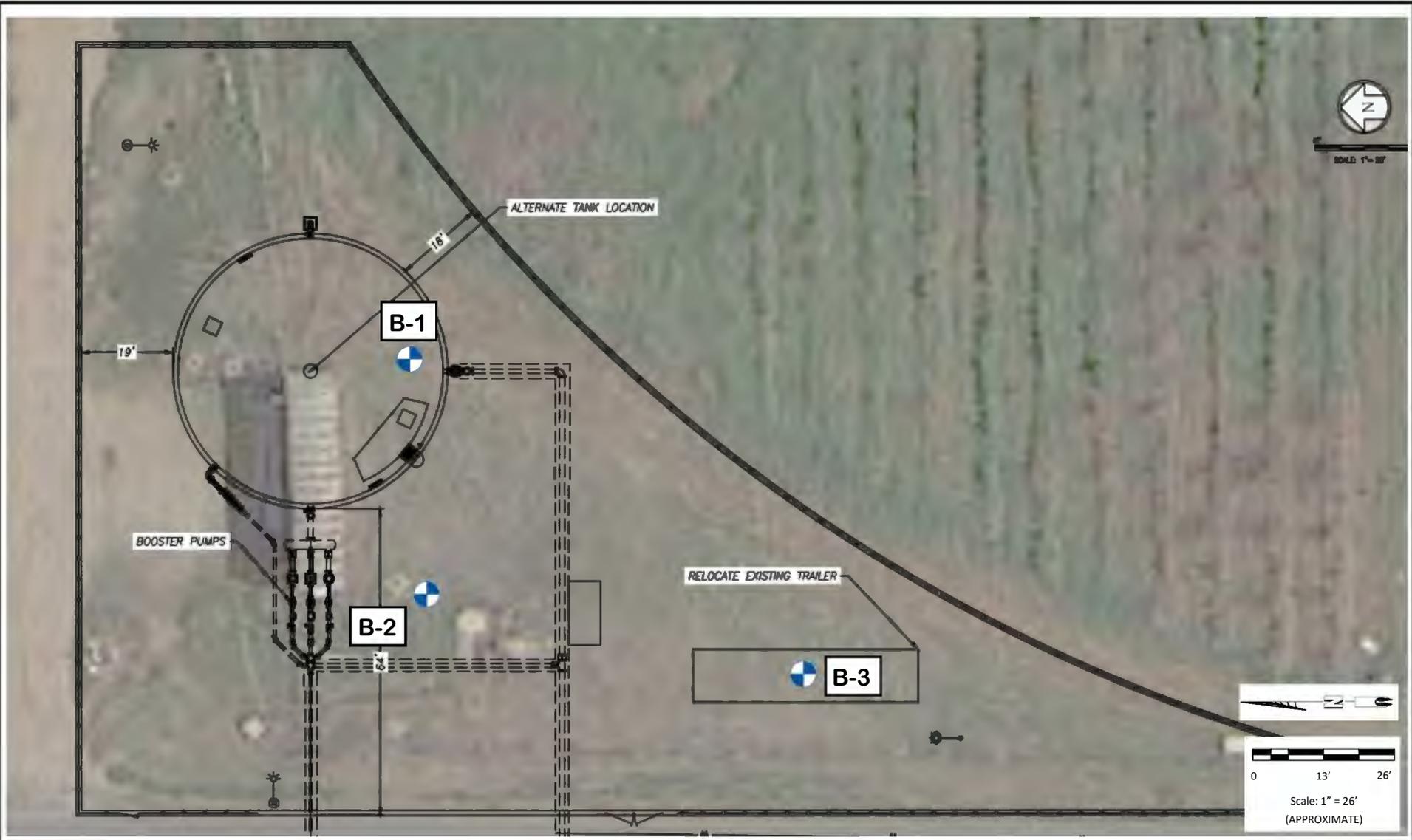
East QK Orosi Water Tank Project  
 East Orosi, Tulare County, California

**FIGURE A-1**

JOB NO. G20-123-11B  
 DATE August 2020

DR. BY VS  
 CH. BY OML  
 SCALE AS SHOWN

SHEET NO. 1  
 OF 1 SHEETS



REFERENCE IMAGE: Site Map

**LEGEND:**

 APPROXIMATE BORING LOCATION

 <b>ESK ASSOCIATES</b> 700 22nd Street Bakersfield, California 93301 Tel. (661) 327-0671	<b>BORING LOCATION MAP</b>		<b>FIGURE A-2</b>	
	East Orosi Water Tank Project East Orosi, Tulare County, California		JOB NO. <u>G20-158-11B</u>	
			DATE <u>August 2020</u>	
		DR. BY <u>VS</u>	SHEET NO. <u>1</u> OF <u>1</u> SHEETS	
		CH. BY <u>AXT</u>		

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS More than Half >#200	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 15% FINES	GP		POORLY GRADED GRAVELS, GRAVEL- SAND MIXTURES
			GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
		GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES	
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 15% FINES	SP		POORLY GRADED SANDS, GRAVELLY SANDS
			SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
		SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES	
FINE GRAINED SOILS More than Half <#200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH		INORGANIC SILTS , MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

Note: Dual symbols are used to indicate borderline soil classifications.

	Pushed Shelby Tube	RV	R-Value
	Standard Penetration Test	SA	Sieve Analysis
	Modified California	SW	Swell Test
	Auger Cuttings	TC	Cyclic Triaxial
	Grab Sample	TX	Unconsolidated Undrained Triaxial
	Sample Attempt with No Recovery	TV	Torvane Shear
CA	Chemical Analysis	UC	Unconfined Compression
CN	Consolidation	(1.2)	(Shear Strength, ksf)
CP	Compaction	WA	Wash Analysis
DS	Direct Shear	(20)	(with % Passing No. 200 Sieve)
PM	Permeability		Water Level at Time of Drilling
PP	Pocket Penetrometer		Water Level after Drilling (with date measured)

**SOIL CLASSIFICATION CHART AND KEY TO TEST DATA**  
Unified Soil Classification System



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## LOG OF BORING NO. B-01

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Samples	Penetration Blows / Foot	Pocket Penetro- meter, TSF	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
		Surface El.: Location:  Surface: field									
		<b>ML: SANDY SILT:</b> yellowish brown, moist, fine to coarse grained sand, trace clay.				60					
		<b>SM: SILTY SAND:</b> reddish brown, moist, dense, fine to coarse grained sand, angular, trace fine grained gravel.		48			129	8			
5		fine to medium grained sand		50/ 6"				9			
10		<b>SC: CLAYEY SAND:</b> reddish brown, moist, dense, fine to medium grained sand.		37, 50/ 2"			121	14			
15											

Completion Depth: 41.5  
 Date Started: 8/7/20  
 Date Completed: 8/7/20  
 California Sampler: 2.4" inner diameter  
 SPT Sampler: 1.4" inner diameter

Drilling Equipment: CME 75  
 Drilling Method: Hollow Stem  
 Drive Weight: 140 pounds  
 Hole Diameter: 8 inches  
 Drop: 30 inches  
 Remarks:



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## LOG OF BORING NO. B-01

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	MATERIAL DESCRIPTION	Surface El.: Location:	Samples	Sample Number	Penetration Blows / Foot	Pocket Penetro- meter, TSF	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
20		<b>CL: SANDY CLAY:</b> brown, very moist, very firm, fine to medium grained sand.		X		14		56		18			
25		<b>SC: CLAYEY SAND:</b> brown, moist, dense, fine to medium grained sand.  very dense, fine grained sand, increase in clay		X		30		34	7				
30				X		57		46		10			

Completion Depth: 41.5  
 Date Started: 8/7/20  
 Date Completed: 8/7/20  
 California Sampler: 2.4" inner diameter  
 SPT Sampler: 1.4" inner diameter

Drilling Equipment: CME 75  
 Drilling Method: Hollow Stem  
 Drive Weight: 140 pounds  
 Hole Diameter: 8 inches  
 Drop: 30 inches  
 Remarks:



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## LOG OF BORING NO. B-01

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	Surface El.: Location:  MATERIAL DESCRIPTION	Samples	Penetration Blows / Foot	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
35		<p><b>SC: CLAYEY SAND:</b> brown, moist, dense, fine to medium grained sand. <i>(continued)</i>            yellowish brown, dense, decrease in moisture, fine to coarse grained sand</p> <p style="text-align: center;">very dense, fine to medium grained sand</p>	X	37	40		12			
40		<p style="text-align: center;">brown, very dense, fine grained sand</p>	X	51			20			
45		End of Boring.								

**Completion Depth:** 41.5  
**Date Started:** 8/7/20  
**Date Completed:** 8/7/20  
**California Sampler:** 2.4" inner diameter  
**SPT Sampler:** 1.4" inner diameter

**Drilling Equipment:** CME 75  
**Drilling Method:** Hollow Stem  
**Drive Weight:** 140 pounds  
**Hole Diameter:** 8 inches  
**Drop:** 30 inches  
**Remarks:**



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## LOG OF BORING NO. B-02

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	Surface El.: Location:  MATERIAL DESCRIPTION	Samples	Sample Number	Penetration Blows / Foot	Pocket Penetro- meter, TSF	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
	[Pattern: Dotted]	Surface: dry silty sand, trace clay, trace gravel										
	[Pattern: Diagonal Lines]	<b>SC: CLAYEY SAND:</b> yellowish brown, moist, fine to coarse grained sand.										
5	[Pattern: Diagonal Lines]	reddish brown, loose, fine to medium grained sand			11			121	13			
	[Pattern: Diagonal Lines]	<b>CL: SANDY CLAY:</b> reddish brown, moist, very hard, fine to coarse grained sand, subrounded to subangular, trace fine grained gravel.			28, 50/ 5"		52	128	10			
10	[Pattern: Dotted]	<b>SC: CLAYEY SAND:</b> reddish brown, moist, dense, fine to medium grained sand.			16, 50/ 5"			122	13			
15	[Pattern: Dotted]											

**Completion Depth:** 16.5  
**Date Started:** 8/7/20  
**Date Completed:** 8/7/20  
**California Sampler:** 2.4" inner diameter  
**SPT Sampler:** 1.4" inner diameter

**Drilling Equipment:** CME 75  
**Drilling Method:** Hollow Stem  
**Drive Weight:** 140 pounds  
**Hole Diameter:** 8 inches  
**Drop:** 30 inches  
**Remarks:** .





BSK Associates  
 700 22nd Street  
 Bakersfield, CA 93301  
 Telephone: (661) 327-0671  
 Fax: (661) 324-4218

## LOG OF BORING NO. B-03

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	Surface El.: Location:  MATERIAL DESCRIPTION	Samples	Sample Number	Penetration Blows / Foot	Pocket Penetro- meter, TSF	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
		Surface: dry silty sand, trace clay, trace gravel  <b>ML: SANDY SILT:</b> reddish brown, moist, fine to coarse grained sand, subangular.  <b>SC: CLAYEY SAND:</b> reddish brown, slightly moist, dense, fine to medium grained sand.  <b>SP-SC: SAND with Clay:</b> brown, moist, dense, fine to coarse grained sand, subangular.  <b>SC: CLAYEY SAND:</b> brown, slightly moist, dense, fine grained sand.										
5					12 50/ 4"		59	108	7			
10					12 50/ 3"			125	13			
15					59			125	13			

Completion Depth: 16.5  
 Date Started: 8/7/20  
 Date Completed: 8/7/20  
 California Sampler: 2.4" inner diameter  
 SPT Sampler: 1.4" inner diameter

Drilling Equipment: CME 75  
 Drilling Method: Hollow Stem  
 Drive Weight: 140 pounds  
 Hole Diameter: 8 inches  
 Drop: 30 inches  
 Remarks:



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### LOG OF BORING NO. B-03

Project Name: East Orosi Water Tank  
 Project Number: G20-158-11B  
 Project Location: East Orosi, California  
 Logged by: V. Simental  
 Checked by: AXT

Depth, feet	Graphic Log	Surface El.: Location:	Samples	Sample Number	Penetration Blows / Foot	Pocket Penetro- meter, TSF	% Passing No. 200 Sieve	In-Situ Dry Weight (pcf)	In-Situ Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index
			X		36				11			
		<b>MATERIAL DESCRIPTION</b>										
		<b>SC: CLAYEY SAND:</b> brown, slightly moist, dense, fine grained sand. <i>(continued)</i> dense, fine to medium grained sand										
		End of Boring.										
20												
25												
30												

Completion Depth: 16.5  
 Date Started: 8/7/20  
 Date Completed: 8/7/20  
 California Sampler: 2.4" inner diameter  
 SPT Sampler: 1.4" inner diameter

Drilling Equipment: CME 75  
 Drilling Method: Hollow Stem  
 Drive Weight: 140 pounds  
 Hole Diameter: 8 inches  
 Drop: 30 inches  
 Remarks:

## APPENDIX B

### LABORATORY TESTING RESULTS



## **APPENDIX B LABORATORY TESTING**

### **Moisture-Density Tests**

The field moisture content, as a percentage of dry weight of the soils, was determined by weighing the samples before and after oven drying in accordance with ASTM D 2216 test procedures. Dry densities, in pounds per cubic foot, were also determined for undisturbed core samples in general accordance with ASTM D 2937 test procedures. Test results are presented on the boring logs in Appendix A.

### **Direct Shear Test**

One (1) Direct Shear Test was performed on in-situ soil samples from selected Borings. The test was conducted to determine the soil strength characteristics. The standard test method is ASTM D 3080, Direct Shear Test for Soil under Consolidated Drained Conditions. The results of the direct shear tests are presented graphically on Figure B-1.

### **Collapse Potential Test**

One (1) Collapse Potential Test was performed on a relatively undisturbed soil sample to evaluate collapse potential characteristics. The test was performed in general accordance with ASTM D 5333. The sample was initially loaded under as-received moisture content to a selected stress level, loaded up to a maximum load of 1300 psf and was then saturated. The test result is presented on Figure B-2.

### **Expansion Index Test**

One (1) Expansion Index Test was performed on a bulk soil sample in the Site area. The test was performed in general accordance with UBC Standard 18-2. The test result is presented on Figure B-3.

### **Corrosivity**

Two (2) Corrosivity Evaluations were performed on bulk soil samples obtained at the time of drilling in the area of planned construction. The soil samples were evaluated for minimum resistivity (ASTM G57), sulfate ion concentration (CT 417), chloride ion concentration (CT 422), and pH of soil (ASTM D4972). The test results are presented in Table B-1.

### **Minus #200 Wash Tests**

Seven (7) #200 Wash Tests were performed on selected soil samples obtained at the time of drilling in the area of planned construction. The test was performed to determine the amount of fine material present in the subsurface material. The test was performed in general accordance with ASTM Test Method D1140. The test results are presented in Table B-2 and the boring logs in Appendix A.



**Table B-1: Summary of Corrosion Test Results**

Sample Location	pH	Sulfate, ppm	Chloride, ppm	Minimum Resistivity, ohm-cm
B-1 @ 0-5 feet bgs	6.40	Not Detected	25	2,200
B-3 @ 0-5 feet bgs	6.27	Not Detected	Not Detected	2,000

**Table B-1: Summary of Minus #200 Wash Test Results**

Test Location	Percent Fines
B-1 @ 0-5 feet bgs	60
B-1 @ 15-16.5 feet bgs	56
B-1 @ 20-21.5 feet bgs	34
B-1 @ 25-26.5 feet bgs	46
B-1 @ 35-36.5 feet bgs	40
B-2 @ 6-6.5 feet bgs	52
B-3 @ 0-5 feet bgs	59





# Direct Shear Test

ASTM D 3080

700 22nd St  
Bakersfield, CA  
Ph: (661) 327-0671  
Fax: (661) 324-4218

Project Name: East Orosi Water Tank  
Project Number: G20-158-11B  
Lab Tracking ID: B20-125  
Sample Location: B-2 @ 3.0-3.5 feet bgs  
Sample Description: SC: CLAYEY SAND: reddish brown, fine to coarse grained sand.

Sample Date: 8/7/2020  
Test Date: 8/13/2020  
Report Date:  
Sampled By: A. Rios  
Tested By: C. Irving

## SHEAR STRENGTH DIAGRAM

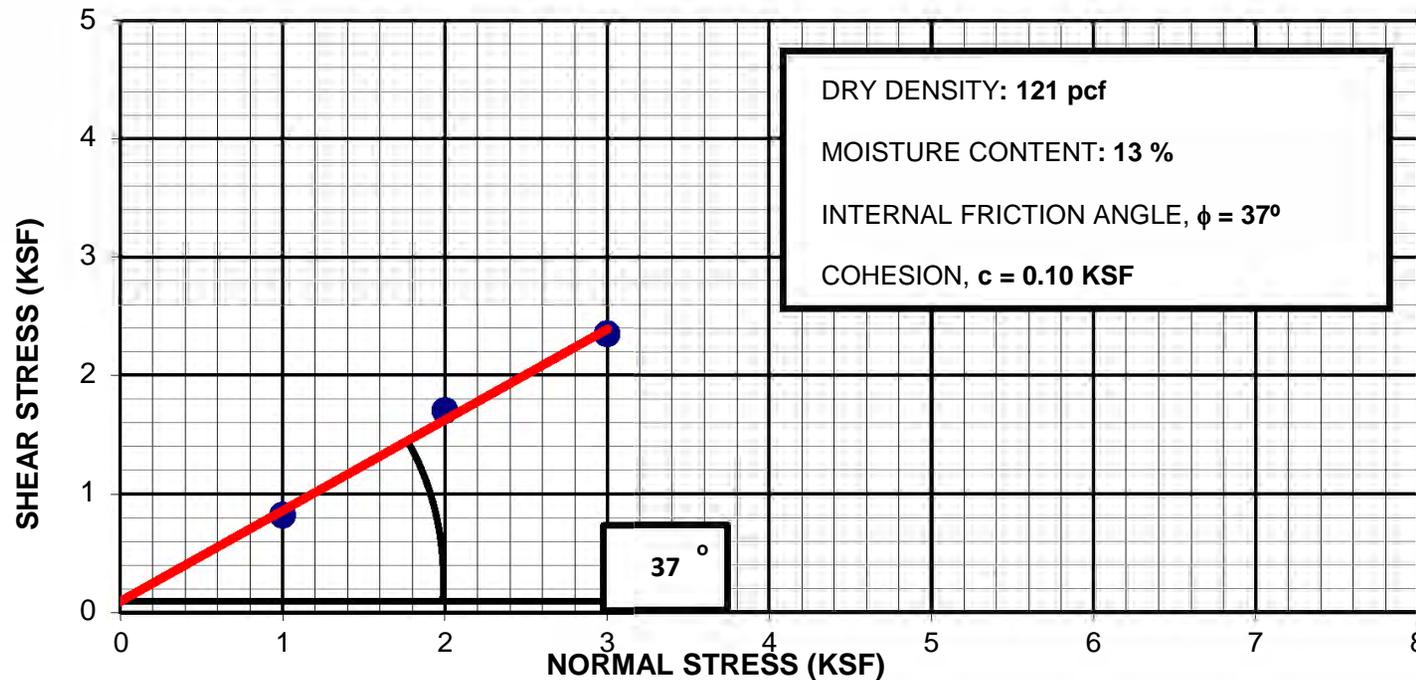


Figure B-1



# Collapse Potential Test

ASTM D 5333, One-Dimensional Analysis

700 22nd St  
Bakersfield, CA  
Ph: (661) 327-0671  
Fax: (661) 324-4218

Project Name: East Orosi Water Tank  
Project Number: G20-158-11B  
Sample Location: B-1 @ 6.0-6.5 feet bgs  
Sample Description: SM: SILTY SAND: reddish brown, fine to coarse grained sand, trace clay.

Sample Date: 8/7/2020  
Test Date: 8/12/2020  
Sampled By: A. Rios  
Tested By: C. Irving

Collapse Potential: 0 percent collapse at 1300 psf  
Peak Load (psf): 1300

Dry Density (pcf): 129  
Initial Moisture Content (%): 9

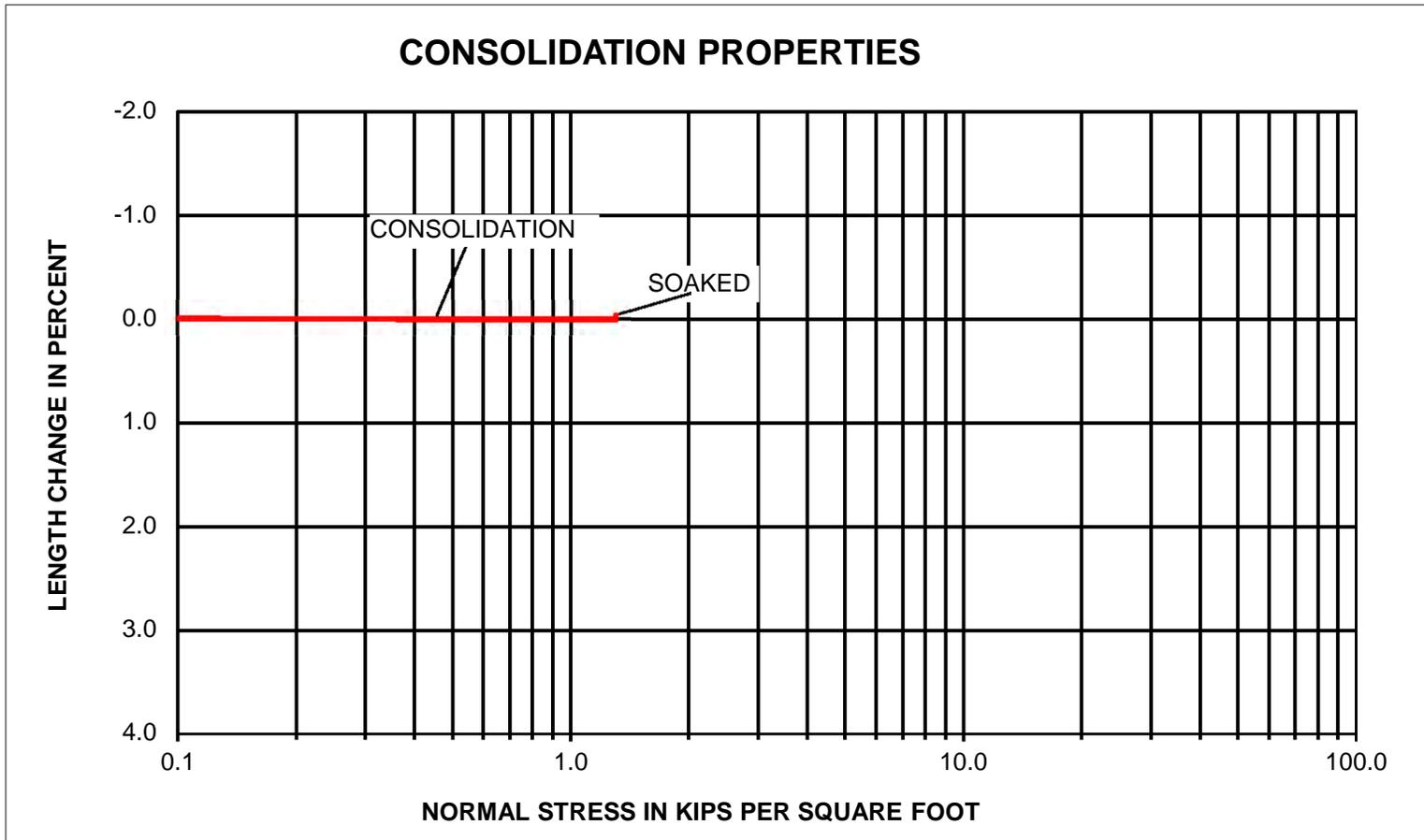


Figure B-2



## EXPANSION INDEX OF SOILS

ASTM D 4829 / UBC STANDARD 18-2

700 22nd Street  
Bakersfield, CA 93301  
Ph: (661) 327-0671  
Fax: (661) 324-4218

<b>Project Name:</b>	<u>East Orosi Water Tank</u>	
<b>Project Number:</b>	<u>G20-158-11B</u>	<b>Sample Date:</b> <u>8/7/2020</u>
<b>Lab Tracking ID:</b>	<u>B20-125</u>	<b>Test Date:</b> <u>8/19/2020</u>
<b>Sample Location:</b>	<u>B-1 @ 0.0-5.0 feet bgs</u>	
<b>Sample Description:</b>	<u>ML: SANDY SILT: reddish brown, fine to coarse grained sand, trace clay.</u>	
<b>Sampled By:</b>	<u>A. Rios</u>	<b>Tested By:</b> <u>F. Velez</u> <b>Reviewed By:</b> <u>I. Remotigue</u>

### TEST DATA

INITIAL SET-UP DATA		FINAL TAKE-DOWN DATA	
Sample + Tare Weight (g)	796.7	Sample + Tare Weight (g)	821.1
Tare Weight (g)	372.7	Tare Weight (g)	372.7
Moisture Content Data		Moisture Content Data	
Wet Weight + Tare	200.0	Wet Weight + Tare	821.1
Dry Weight + Tare	186.4	Dry Weight + Tare	767.4
Tare Weight (g)	4	Tare Weight (g)	372.7
Moisture Content (%)	7.5%	Moisture Content (%)	13.6%
Initial Volume (ft <sup>3</sup> )	0.007272	Final Volume (ft <sup>3</sup> )	0.007459
Remolded Wet Density (pcf)	128.5	Final Wet Density (pcf)	132.5
Remolded Dry Density (pcf)	119.6	Final Dry Density (pcf)	116.7
<b>Degree of Saturation</b>	<b>49.3</b>	<b>Degree of Saturation</b>	<b>83</b>

### EXPANSION READINGS

Initial Gauge Reading (in)	0.2526
Final Gauge Reading (in)	0.2783
Expansion (in)	0.0257

<b>Uncorrected Expansion Index</b>	<b>26</b>
<b>Corrected Expansion Index, EI</b>	<b>25</b>

### Classification of Expansive Soil

EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Remarks: The material has a low expansion potential

Figure B-3

**APPENDIX F**

**WATER DEMAND MEMORANDUM**



# MEMO

**Date:** July 6, 2023 **Project No.:** 190391.01/ 03  
**To:** Steve Brandt and Jaymie Brauer  
**From:** Brian Shoener  
**Subject:** East Oroshi Project Water Demands

## East Oroshi Project Water Demands

Below are the estimated demands for EOCS, Family Education Center, and OPUD, per sanitary survey reports and information provided to the Division of Drinking Water.

Individual Water System Demands and Estimated Consolidation Demand	Maximum Day Demand (MDD) (gpm)	Peak Hourly Demand (PHD)(gpm)	Source Capacity (gpm)	Source Capacity with highest producing source (gpm) offline	Standby Source (gpm)	Storage (gallon)
Family Education Center	29	43.5	NA	NA	NA	NA
EOCS	243	364.5	NA	NA	NA	NA
OPUD	1,516	2,274	2,225	1,575	650	750,000
<b>Total Combined</b>	<b>1,788</b>	<b>2,682</b>	<b>2,225</b>	<b>1,575</b>	<b>650</b>	<b>750,000</b>
30 Residences along Ave 416	73	110	NA	NA	NA	NA
<b>Total Combined w Residences along Ave 416</b>	<b>1,861</b>	<b>2,792</b>	<b>2,225</b>	<b>1,575</b>	<b>650</b>	<b>750,000</b>

Estimated Consolidation Water Demands	
MDD Required (gpm)	1,861
Available OPUD capacity minus highest producing source (gpm)	1,575
4 hours of PHD Required (gallons)	670,080
Available 4 hours PHD + Storage (gallons)	1,420,080

Currently, Oroshi PUD is unable to meet the combined MDD with their highest source capacity offline.

Fire flows, with the existing distribution system of 4-inch and 6-inch lines, cannot be obtained at normally required residential pressures and durations. The Tulare County Fire Department will require 1,000 gallons per minute with a one-hour duration, which would be minimally satisfactory. The existing fire hydrant system, supplied with 6-inch or multiple 4-inch hydrant supply lines, cannot meet this standard given adequate supply and pressures



to the community distribution system. Tulare County Fire is aware of the current lack of water capacity and is taking precautions, as of November 2022, to address water supply issues in the interim.

Adequate supply (1,000 gpm) and 20 psi pressure should be provided with maximum day demand (MDD) of 243 gpm for a total required flow of 1,243 gallons per minute within East Orosi. Alternative well-to-community piping and in-community storage will be evaluated and cost-estimated on these demand estimates.

With the proposed connection to the OPUD water system, water pumped from within OPUD will be used to provide water to EOCSD and the residences along Ave 416. Although these are two separate districts, both districts (and the 30 residences along Ave 416 served by private wells) are all within the Kings River East Groundwater Sustainability Agency (GSA). Therefore, groundwater will stay within the boundaries of the GSA.

### ***Water Storage Facilities***

A storage tank will be required for East Orosi to meet MDD and fire flow demands. It is preliminarily estimated that a 300,000-gallon tank (storage volume) could provide 24 hours of maximum day demand (243 gpm) plus residential fire flow (1-hour x 1,000 gpm). The best location for such a storage facility is the current location of the District office in the field east of Road 140 (Figure 9).

### **Assumptions and Tank Design Criteria**

1. Assuming a welded steel water storage tank.
2. Tank height will be 24 feet.
3. Tank overflow will be at 23 feet.
4. Unusable space at the tank bottom is 1 foot.
5. Tank diameter is 50.5 feet.
6. Total volume of the tank is 361,541 gallons.
7. Usable height is 22 feet, which equates to 329,600 gallons of usable volume.
8. Usable volume allows for more than one and half days of storage at average daily usage.
9. Inlet and outlet are 90 degrees apart from each other to prevent short-circuiting.

### **Assumptions and Booster Pumps Design Criteria**

1. Booster pump system is designed for 250 gpm and 55 psi.
2. Booster pump system will consist of two pumps equipped with VFDs.
3. System is designed to operate with one pump with a second pump for redundancy.
4. Fire flow will be provided by a 1,000 gpm high-flow pump.

## **Comprehensive Response to Climate Change**



The Drinking Water State Revolving Fund, Technical Package, requires the Preliminary Engineering Report to identify how the proposed project and facilities are vulnerable to climate change and the impact they may have on climate change.

### ***Vulnerability***

Identify the effects of climate change to which the facilities may be susceptible:

- **Water Supply Depletion:** The proposed project relies on groundwater. As such, the proposed well could be adversely impacted if the groundwater supply in the area decreases below the depth of the well.
- **Drought:** The proposed project relies on groundwater. As such, the proposed well could be adversely impacted if a drought lowers the groundwater elevation in the area below the depth of the well.
- **Water Supply Quality:** Groundwater quality in the area is known to be high in nitrates and pesticides. If the groundwater levels in the area decrease, there is the possibility that the proposed well may be susceptible to degraded groundwater quality.

### ***Adaptation***

Identify measures taken in response to climate change:

- **Additional Storage:** The proposed project provides a water storage tank for the existing water system that does not have water storage.
- **Fire Resistant Water Connections and Hydrants:** The proposed project will provide new water connections and fire hydrants capable of supplying adequate flows to meet the Fire Code. The existing water system cannot provide adequate fire flow.

### ***Mitigation***

Identify actions taken to reduce concentrations of greenhouse gases in the atmosphere:

- **Water Conservation:** The proposed project will provide water meters for all services. The existing water system has outdated water meters that are not accurate. Due to this, existing customers are charged a flat rate for water instead of charging based on usage. After the proposed project is operational, customers will be charged based on water usage. This will lead to water conservation in the system.