INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

JAYE STREET BRIDGE WIDENING PROJECT

June 2012

Quad Knopf

Initial Study/Mitigated Negative Declaration
Jaye Street Bridge Widening Project

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June 2012

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SECTION ONE

INTRODUCTION

SECTION ONE – INTRODUCTION

1.1 CEQA Requirements

This document is the Initial Study/Mitigated Negative Declaration on the potential environmental effects of the replacement of the Jaye Street Bridge Widening Project over the Tule River, located in the City of Porterville. The City of Porterville will act as the Lead Agency for this project pursuant to the *California Environmental Quality Act (CEQA)* and the *CEQA Guidelines.*

Section 15063 of the CEQA Guidelines requires the Lead Agency to prepare an Initial Study to determine whether a discretionary project will have a significant effect on the environment. The purposes of an Initial Study, as listed under Section 15063[c] of the CEQA Guidelines, include:

(1) Provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR [Environmental Impact Report] or a Negative Declaration;

(2) Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration;

(3) Assist in the preparation of an EIR, if one is required, by:

- *(A) Focusing the EIR on the effects determined to be significant,*
- *(B) Identifying the effects determined not to be significant,*
- *(C) Explaining the reasons for determining that potentially significant effects would not be significant, and*
- *(D) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.*

(4) Facilitate environmental assessment early in the design of a project;

(5) Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;

(6) Eliminate unnecessary EIRs; and

(7) Determine whether a previously prepared EIR could be used with the project.

Regardless of the type of CEQA document that must be prepared, the basic purpose of the CEQA process as set forth in the CEQA Guidelines Section 15002(a) is to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.

(2) Identify ways that environmental damage can be avoided or significantly reduced.

(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that:

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

The Initial Study contained in Section Three of this document has determined that with mitigation measures and features incorporated into the project design and operation, the environmental impacts are less than significant.

1.2 Intended Uses of the Mitigated Negative Declaration

This Mitigated Negative Declaration is an informational document that is intended to inform decision-makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed project. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the City must balance any potential environmental effects against other public objectives, including economic and social goals.

The City of Porterville (City), as the Lead Agency, has determined, based on the Initial Study, that the environmental review for the proposed application can be completed with a Mitigated Negative Declaration. This report, together with a Notice of Intent to Adopt a Negative Declaration, will be circulated and published for a period of 30 days for public and agency review. Responsible agencies that may have discretionary approval authority over the project and trustee agencies having jurisdiction over natural resources affected by the project will have the opportunity to review and provide comments during the review period. Other agencies and the public may also contribute comments.

The written and oral comments received during the public review period will be considered by the City prior to adopting the Mitigated Negative Declaration.

1.3 Document Organization and Contents

The Mitigated Negative Declaration is organized as follows:

Section I. Introduction presents an introduction to the entire report. This section identifies contact persons involved in the process, scope of environmental review and environmental procedures.

Section II. Project Description describes the proposed project and project design features.

Section III. Environmental Evaluation contains the environmental checklist and Initial Study form. The checklist form presents results of the environmental evaluation for the proposed project and those issue areas that would either have a potentially significant impact, a less than significant impact, or no impact.

Section IV. Mitigation Monitoring Plan

Section V. Persons and Documents Consulted

Section VI. List of Preparers

SECTION TWO

PROJECT DESCRIPTION

SECTION TWO – PROJECT DESCRIPTION

2.1 Introduction

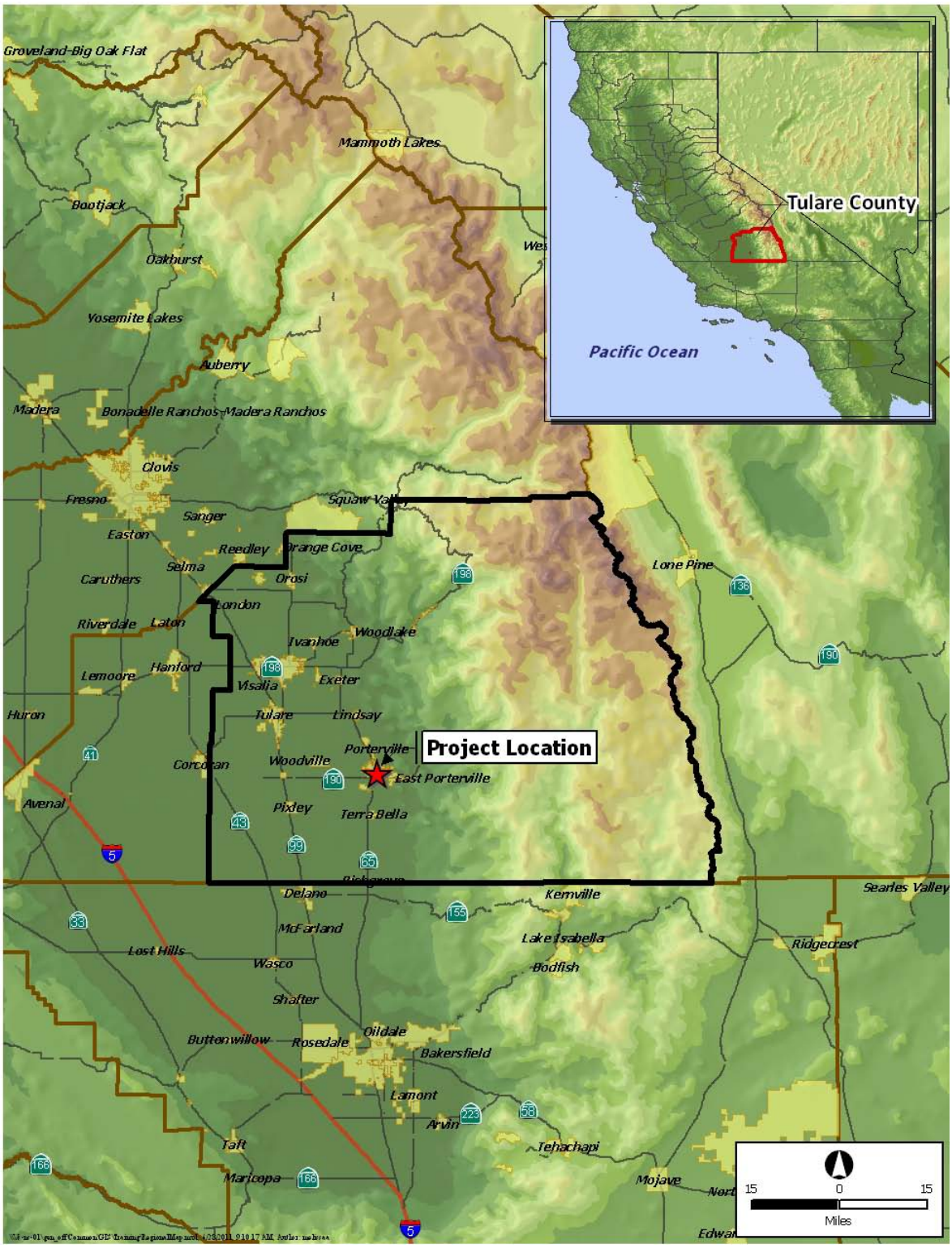
This document is an Initial Study and a Mitigated Negative Declaration of the potential environmental effects associated with the Jaye Street Bridge Widening Project (Bridge No. 46C0099) along Jaye Street between Springville Avenue and Date Avenue in the City of Porterville. Pursuant to Section 15063 of the CEQA Guidelines, this Initial Study has been conducted to determine whether the proposed project will have a significant effect on the environment. The Initial Study Checklist, in Section Three, found that while there are potentially significant environmental impacts that may result from the proposed project, they could be mitigated to a less than significant level by the mitigation measures proposed in this document.

2.2 Project Location and Background

The project is located in the south central portion of Tulare County (Figure 2-1). The project site is situated in the southeastern portion of the city of Porterville on Jaye Street, approximately 0.30 miles south of Date Avenue and 0.40 miles north of State Route 190 (SR-190) (Figure 2-2). Jaye Street, a major north-south arterial, crosses the Tule River providing essential connectivity to the circulation network.

The latitude and longitude of the existing bridge are 36°3’23”N and 119°1’35”W, respectively. These coordinates are within the SW ¼ of the NW ¼ of the SE ¼ of Section 35 in Township 21 S, Range 27 E on the Porterville USGS 7 ½ minute quadrangle. The project includes portions of eight parcels: 260-320-027, 260-320-031, 260-320-032, 260-320-010, 260-320-029, 260-320-026, 260-020-014, and 260-020-015 (Figure 2-3). Elevation on the site is approximately 453 feet above mean sea level. Land use in the area surrounding the project site is primarily recreational (Tule River Parkway), residential and commercial. The General Plan land use designations surrounding the project area include: Medium Density Residential, Parks and Recreation, and Retail Centers.

The existing structure was built in 1970, has two traffic lanes and is an eight-span reinforced concrete slab type bridge 241 feet and 6 inches in length. The piers consist of five 18 inch diameter concrete pile extensions attached by a concrete collar to steel H-piles with 70 ton service design load. The abutments are diaphragm type supported on steel H-piles with 70 ton service design load. The Bridge Rehabilitation Study and “As-Built” drawings of the existing bridge are included in Appendix A.



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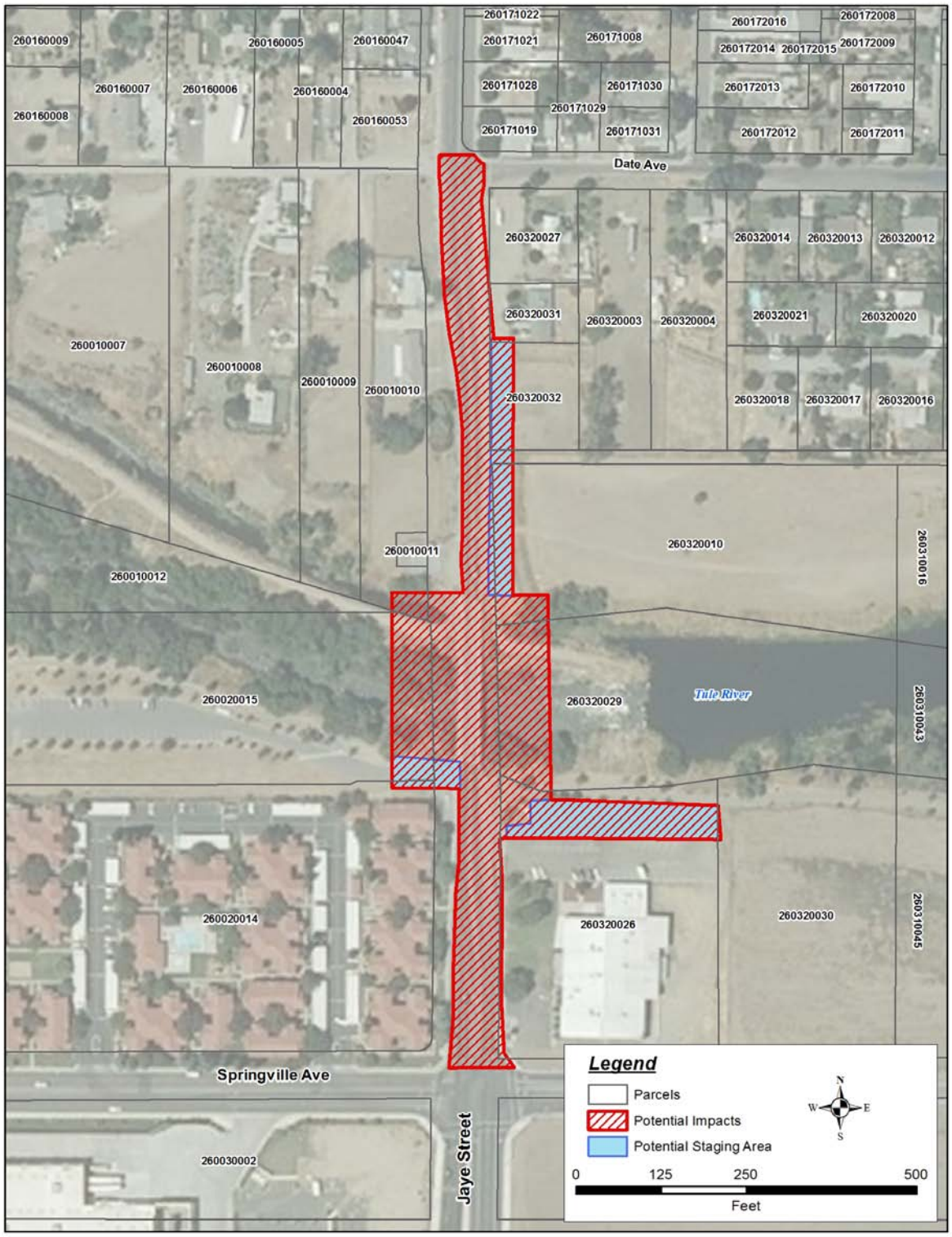
REGIONAL LOCATION

Figure 2 - 1

Quad Knopf	PROJECT SITE	Figure 2 - 2



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ASSESSOR'S PARCEL MAP

Figure 2 - 3

The west side railing is substandard and needs to be replaced if the structure is widened. A concrete barrier Type 732 is proposed. The existing sidewalk is proposed to be removed. There are existing 12 inch sewer and 10 inch water lines at the west edge of bridge deck that will need to be relocated during the removal of the existing sidewalk. These two utilities may require a permanent utility bridge or the west bridge overhang will need to be reconstructed to accommodate the utilities and pedestrian railing.

2.3 Project Description

PURPOSE AND NEED

The existing two-lane bridge has been deemed structurally deficient by the Caltrans Area Bridge Maintenance Engineer and is not adequate to handle existing and projected traffic volumes on Jaye Street. The City of Porterville has undertaken a Bridge Rehabilitation Study (Appendix A) to ascertain the best solution for bringing the bridge up to current seismic, hydraulic, and structural design standards. The bridge is eligible for rehabilitation under the Federal Highway Bridge Program.

BRIDGE WIDENING AND RECONSTRUCTION OF APPROACHES

The proposed project consists of widening the bridge from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The bridge would include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches would also be widened from two lanes to four lanes to tie into the existing four lane sections of Jaye Street north of the bridge to Date Avenue and south of the bridge to Springville Avenue. Potential project improvements also include sidewalk and intersection improvements at the Jaye Street and Date Avenue intersection.

The City has developed four design alternatives for the proposed project. It should be noted that this CEQA document analyzes the worst-case scenario (largest potential footprint) that would be needed in order to construct the project. The analysis contained in Chapter Three and the technical appendices attached hereto are intended to cover any of the four design alternatives. The alternatives are as follows:

1A. **Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge**. Under this alternative, the existing structure would be retrofitted to meet current seismic requirements and widened in-kind. The new structure would have an overall appearance similar to the existing structure. This alternative can be completed in one season.

1B. **Widen existing structure Both sides – Eight-span CIP reinforced concrete slab bridge**. Under this alternative, the existing structure would be widened on both sides and require the same seismic retrofit as Alternative 1A. The west side widening would consist of only approximately 8 feet to line up with the existing sidewalk and most of the widening would occur on the east side. This alternative would be scheduled to be constructed over two seasons.

2. **Replace existing structure – Three-span CIP prestressed concrete box girder.** Under this alternative, a 3-span CIP/PS concrete box girder bridge is considered. The profile grade will need to be raised to accommodate a higher structure depth of 4 feet. This alternative would be scheduled to be constructed over two seasons.

3. **Replace existing structure – Seven span CIP reinforced concrete slab bridge.** Under this alternative, a 7-span reinforced concrete slab bridge is considered. This alternative would be scheduled to be constructed over two seasons.

Depending on the design alternative selected, the bridge would ultimately be approximately 80 feet wide. Existing structure components would be reused to the greatest extent feasible. Refer to Appendix A – Bridge Rehabilitation Study for further information regarding the alternative designs.

BRIDGE APPROACHES

Since funding may allow for road improvements on the north and south road approaches, the area of potential affect includes approximately 600 feet-plus on the north (to Date Avenue) and 350 feet-plus on the south approach (to Springville Avenue). The approaches are proposed to be re-aligned and restriped from two-lanes to four-lanes to tie into the existing four-lane roads that currently exist at the Date Avenue intersection to the north and south of the bridge north of Springville Avenue. Potential improvements to the approaches would include realignment, overlay, restriping, and shoulder work within the existing right-of-way. The improvements would eliminate the existing "bottleneck" conditions in the vicinity of the bridge. Road approaches would be constructed for any of the proposed alternatives.

VEHICULAR TRAFFIC ACCESS/STAGING

In order to maintain vehicular traffic, construction of the project would need to be staged for all alternatives. Traffic will use the existing bridge during Stage 1 with one traffic lane open in each direction while a portion of the bridge is constructed. During Stage 2, the traffic would be moved onto the new portion while the other is worked on. A closure pour would be completed at the end of Stage 2 construction to attach the two structures. Traffic staging applies to any of the proposed alternatives.

PROJECT SCHEDULE

Since road closure is not permitted by the City, construction would likely need to occur over two seasons (with the exception of Alternative 1A which could potentially be completed over one season). It is anticipated that riverbed access would occur during the low flow season (typically June – October) or as permitted by the regulatory agencies.

CONSTRUCTION EQUIPMENT

Typical road and bridge construction equipment would include bull dozers, pile driving or drilling rig (Baker tanks if CIDH Concrete Piles are used), backhoes, excavators, scrapers, trucks, cranes, air compressors, graders, forklifts, ready-mix trucks, concrete pumps, bridge deck finishing machine, HMA pavers, rollers, pavement striper, and workers' vehicles.

CONSTRUCTION STAGING

The construction contractor would likely use a combination of existing bridge approach shoulders, fallow areas adjacent to the roadway to the north, and adjacent to the Tule River Parkway driveway (southwest), and/or other areas that can be secured to store equipment and materials. Any temporary staging area would be reclaimed to conditions equivalent to existing conditions after project construction has been completed.

SECTION THREE

EVALUATION OF ENVIRONMENTAL IMPACTS

SECTION THREE – EVALUATION OF ENVIRONMENTAL IMPACTS

Environmental Checklist and Discussion

1. Project title:
   Jaye Street Bridge Widening Project

2. Lead agency name and address:
   City of Porterville
   291 North Main Street
   Porterville, CA 93257

3. Contact person and phone number:
   Bradley D. Dunlap, Community Development Director
   City of Porterville
   (559) 782-7460

4. Project location: The Jaye Street Bridge (Bridge #46C0099) is located in the City of Porterville on Jaye Street (also known as Road 244), over the Tule River, 0.4 miles north of State Route 190 (SR-190) between Springville Avenue and Date Avenue.

5. Project sponsor's name and address: **City of Porterville**
   291 North Main Street
   Porterville, CA 93257

6. General plan designation: Not applicable. City of Porterville Right-of-Way.

7. Zoning: Not applicable. City of Porterville Right-of-Way.

8. Description of project: See Section Two, Project Description.

9. Surrounding land uses and setting: The bridge crosses the Tule River and is adjacent to the Tule River Parkway trailhead. Surrounding land north of the river is partially developed with residential uses; some parcels are underdeveloped or vacant, but no applications are pending. Surrounding land south of the river is privately developed with residential and commercial uses, as well as the City's recreational trail - Tule River Parkway.

10. Other public agencies whose approval or consultation is required (e.g., permits, financing approval, participation agreements):

    - State of California Native American Heritage Commission;
    - State of California Department of Fish and Game;
    - California State Clearinghouse, within the Office of Permit Assistance;
    - U.S. Army Corps of Engineers;
    - State of California Department of Transportation (Caltrans);
    - San Joaquin Valley Air Pollution Control District;
    - Central Valley Regional Water Quality Control Board; and
    - Central Valley Flood Protection Board.

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.

☐ Aesthetics	☐ Agriculture Resources and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology /Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Transportation/ Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance

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 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL 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.

Bradley D. Dunlap, Community Development Director
City of Porterville

6/21/12
Date

3.1 Aesthetics

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Response:

Scenic Vistas (a): The City of Porterville General Plan does not identify any scenic vistas within the project area. The proposed project would allow for the demolition and replacement or reconstruction of an existing bridge. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The project site itself does not provide any visual resources that would be considered a scenic vista, because it primarily consists of the existing bridge structure. Neither the project area nor any surrounding land use contains features typically associated with scenic vistas (e.g., ridgelines, peaks, overlooks). Therefore, little opportunity exists for project activities to obscure views of scenic vistas.

Conclusion: The project would cause ***less than significant impacts*** to scenic vistas.

Mitigation Measures: None are required.

Scenic Resources (b): There are no state designated scenic highways within the immediate proximity to the project site. California Department of Transportation Scenic Highway Mapping System identifies State Route 190 (SR-190) east of SR-65 as an Eligible State Scenic Highway. This is the closest highway, located approximately 0.4 miles south of the project site. However, the project site is both physically and visually separated from SR-190 by

intervening land uses. In addition, no scenic highways or roadways are listed within the project area in the City of Porterville's General Plan or Tulare County's General Plan. Based on the National Register of Historic Places (NRHP) and the City and County's General Plans, no historic buildings exist on the project site. The proposed project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor.

Conclusion: There would be ***no impact.***

Mitigation Measures: None are required.

Visual Character (c): The proposed project would not substantially change the visual character of the project area. The Jaye Street Bridge and bridge approaches are an existing feature of the landscape. The bridge replacement/reconstruction and roadway widening would not introduce new contrasting elements to the landscape. Widening of the bridge and roadway would slightly alter the character of the bridge and roadway. However, because the bridge and roadway are currently part of the landscape, the balance between the natural and developed character in the area would not be disturbed. The proposed project would remove some trees immediately adjacent to the bridge; however, the project has been configured to minimize tree removal to the extent feasible. Impacts regarding removal of trees are discussed in detail in Section 3.4: Biological Resources. The removal of trees would not significantly alter or change the viewshed; as such, impacts to the visual character of the site are less than significant.

Conclusion: This impact would be ***less than significant***.

Mitigation Measures: None are required.

Creation of light or glare (d): Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments; however, these lights have the potential to produce spillover light and glare and waste energy, and if designed incorrectly, could be considered unattractive. Light that falls beyond the intended area is referred to as "light trespass." Types of light trespass include spillover light and glare. Minimizing all these forms of obtrusive light is an important environmental consideration. A less obtrusive and well-designed energy efficient fixture would face downward, emit the correct intensity of light for the use, and incorporate energy timers.

Spillover light is light emitted by a lighting installation that falls outside the boundaries of the property on which the installation is sited. Spillover light can adversely affect light-sensitive uses, such as residential neighborhoods at nighttime. Because light dissipates as it travels from the source, the intensity of a light fixture is often increased at the source to compensate for the dissipated light. This can further increase the amount of light that illuminates adjacent uses. Spillover light can be minimized by using only the level of light necessary, and by using cutoff type fixtures or shielded light fixtures, or a combination of fixture types.

Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare.

The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as discomfort glare, or it may diminish the ability to see other objects in the darkened environment, referred to as disability glare. Glare can be reduced by design features that block direct line of sight to the light source and that direct light downward, with little or no light emitted at high (near horizontal) angles, since this light would travel long distances. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles.

Currently the only sources of light on the project site are from the vehicles traveling north and south along Jaye Street. Nearby sources of light include street lights south of the project site and lighting from land uses north and south of the bridge. Lighting would be added to both ends of the bridge, however, such lighting would be subject to the requirements of the Porterville Development Ordinance 300.07, which ensures that outdoor lighting does not produce obtrusive glare onto the public right-of-way or adjoining properties. Lighting fixtures for the bridge would be designed with "cutoff" type fixtures or shielded light fixtures, or a combination of fixture types to cast light downward, thereby providing lighting at the ground level for safety while reducing glare to adjacent properties. Accordingly, the project would not create substantial new sources of light or glare.

Conclusion: This impact would be ***less than significant***.

Mitigation Measures: None are required.

3.2 *Agriculture and Forestry*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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.				
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12229(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by GC section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Response:

Farmland Conversion (a, e): The project site is located in an area of the City considered urban, built up land by the State Farmland Mapping and Monitoring Program. No *Prime Farmland, Unique Farmland, or Farmland of Statewide Importance* or land under the Williamson Act contracts occurs in the project area. Therefore, no land conversion from Farmland would occur for the project. Surrounding land uses include residential, commercial, and recreational uses; as such, the proposed project does not have the potential to result in the conversion of Farmland to non-agricultural uses or forestland uses to non-forestland.

Conclusion: There would be ***no impacts***.

Mitigation Measures: None are required.

Zoning Conflicts (b, c): The project site is not zoned for agriculture nor is the site covered by a Williamson Act contract; No impacts would occur. The project is not zoned for forestland and does not propose any zone changes related to forest or timberland.

Conclusion: There would be ***no impacts***.

Mitigation Measures: None are required.

Forest Land Conversion (d): No conversion of forestland, as defined under Public Resource Code or General Code, as referenced above, will occur as a result of the project.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

3.3 *Air Quality*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management of 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?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations or hazardous emissions?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Response:

This environmental issue focuses on the project's air quality impacts. Issues over project consistency with applicable air quality plans, policies and regulations, increases of any pollutant

for which the area has been designated as a "non-attainment" area are to be addressed. Additional concerns are over the exposure of sensitive receptors, such as nearby residents, to increased levels of air pollution or odors.

Air Quality Attainment Plan Consistency (a): The San Joaquin Valley Air Basin (SJVAB) is designated nonattainment of state and federal health based air quality standards for ozone and $PM_{2.5}$. The SJVAB is designated nonattainment of state PM_{10}. To meet Federal Clean Air Act (CAA) requirements, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has multiple air quality attainment plan (AQAP) documents, including:

- Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard (2004);
- 2007 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and
- 2008 $PM_{2.5}$ Plan.

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the project uses would be considered to conflict with the attainment plans. In addition, if the project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

As discussed in Impact c), below, predicted construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the project uses would not conflict with emissions inventories contained in regional air quality attainment plans, and would not result in a significant contribution to the region's air quality non-attainment status. In addition, the project would not result in a change of land use and would not result in an increase in vehicle miles traveled unaccounted for in regional emissions inventories. Additionally, the project would comply with all applicable rules and regulations. Therefore, this impact is less than significant.

Conclusion: This impact would be ***less than significant impact***.

Mitigation Measures: None are required.

Air Quality Standards/Violations (b): Because ozone is a regional pollutant (SJVAPCD 2002), the pollutants of concern for localized impacts are CO and fugitive PM_{10} dust from construction. Ozone and PM_{10} exhaust impacts are addressed under Impact c), below. The proposed project would not result in localized CO hotspots or PM_{10} impacts, as discussed below. Therefore, the proposed project would not violate an air quality standard or contribute to a violation of an air quality standard in the project area.

LOCALIZED PM_{10}

Localized PM_{10} would be generated by project construction activities, which would include earth-disturbing activities. The SJVAPCD indicates that all control measures in Regulation VIII are required for all construction sites by regulation. The SJVAPCD's Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2002) lists additional measures that may be required of very large projects or projects close to sensitive receptors. If all appropriate "enhanced control measures" in the GAMAQI are not implemented for very large projects or those close to sensitive receptors, then construction impacts would be considered significant (unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary). The GAMAQI also lists additional control measures (Optional Measures) that may be implemented if further emission reductions are deemed necessary by the Lead Agency. The SJVAPCD's Regulation VIII (Fugitive PM_{10} Prohibitions) has been updated and expanded since the GAMAQI guidance was written in 2002. Regulation VIII now includes the "enhanced control measures" contained in the GAMAQI.

The proposed project would comply with the SJVAPCD's Regulation VIII dust control requirements during construction and demolition (including Rules 8011, 8031, 8041, and 8071). Compliance with this regulation would reduce the potential for significant localized PM_{10} impacts to less than significant levels.

CO HOTSPOT

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The SJVAPCD provides screening criteria to determine when to quantify local CO concentrations based on impacts to the level of service (LOS) of roadways in the project vicinity.

The existing bridge is not adequate to handle existing and projected traffic volumes on Jaye Street as a result of General Plan implementation and has been deemed to be structurally deficient. The proposed project consists of rehabilitating the existing bridge to widen from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The proposed project would not increase traffic above levels estimated in the General Plan. The General Plan estimated that the LOS for the segment of roadway covered by the bridge would continue to be at level B with implementation of the proposed project improvements. Therefore, as further discussed in the Transportation/Traffic checklist evaluation, the project would not generate, or substantially contribute to, additional traffic that would reduce the level of surface on local roadways. Therefore, the project would not significantly contribute to an exceedance that would exceed state or federal CO standards.

Conclusion: This impact would be ***less than significant impact***.

Mitigation Measures: None are required.

Non-attainment Cumulatively Considerable Net Increase of Criteria Pollutants (c): The nonattainment pollutants for the SJVAPCD are ozone, PM_{10} and $PM_{2.5}$. Therefore, the pollutants of

concern for this impact are ozone precursors, regional PM_{10}, and $PM_{2.5}$. Ozone is a regional pollutant formed by chemical reaction in the atmosphere, and the project's incremental increase in ozone precursor generation is used to determine the potential air quality impacts, as set forth in the GAMAQI.

The SJVAPCD does not have a threshold for regional PM_{10} or $PM_{2.5}$. This document proposes a PM_{10} threshold using the same basis as the ozone precursor thresholds. Since the GAMAQI was published, the SJVAPCD has been recommending use of a PM_{10} threshold of 15 tons per year. However, a similar basis of threshold is not available for $PM_{2.5}$ emissions. Because the SJVAB is in nonattainment for $PM_{2.5}$, the threshold for $PM_{2.5}$ for this project will be nine tons per year. The justification for this number is that $PM_{2.5}$ is in nonattainment and should have a more stringent threshold than PM_{10} to provide a worst-case assessment. The annual standard for PM_{10} is 20 $\mu g/m^3$ and the annual standard for $PM_{2.5}$ is 12 $\mu g/m^3$. Therefore, the ratio of PM_{10} to $PM_{2.5}$ results in a threshold for $PM_{2.5}$ of nine tons per year.

The annual significance thresholds to be used for the project for operational and construction emissions are as follows:

- 10 tons per year ROG;
- 10 tons per year NOx;
- 15 tons per year PM_{10}; and
- 9 tons per year $PM_{2.5}$.

The project involves the widening of an existing bridge and widening of approaches to the north and south of the bridge. It was assumed that the project would be built out in 12 months over two years. Project construction was assumed to begin in 2012. The Sacramento Metropolitan Air Quality Management District's Road Construction model was used to estimate emissions from the infrastructure improvements. (Note that this model was used because no comparable model has been issued by the SJVAPCD, however the SJVAPCD approves of the model's usage for linear construction project.). The Roadway Construction Emissions Model is a Microsoft Excel worksheet available to assess the emissions of linear construction projects. The estimated annual construction emissions are shown below (See Appendix B for the output file). If construction were to occur in later years, the construction emissions would be equal or less than the 2012 estimates, because of fleet changeover and regulatory requirements.

Table 3.3-1
Construction Emissions

	Emissions (tons)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
2012 Bridge Construction	0.5	4.0	0.6	0.3
2012 Roadway Construction	0.5	3.7	0.6	0.3
Total 2012	**1.0**	**7.7**	**1.2**	**0.6**
SJVAPCD Annual Threshold	10	10	15	9
Any Year Significant?	**No**	**No**	**No**	**No**

The project's construction emissions would not exceed the SJVAPCD's thresholds for ozone precursors or PM_{10} or $PM_{2.5}$. As discussed in Section 4.3.2 of the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) provides that any proposed project that would individually have a significant air quality impact (i.e., exceed significance thresholds for ROG, NOx, PM_{10}, or $PM_{2.5}$) would also be considered to have a significant cumulative impact. Although the GAMAQI does not provide guidance for evaluating cumulative air quality impacts in instances where project-specific emissions of criteria pollutants do not exceed the Air District's significance thresholds, it does state: "[a]ll but the largest individual sources emit ROG and NOx in amounts too small to have a measurable effect on ambient ozone concentrations by themselves." Because the project would not exceed the project-level thresholds of significance, the project would not to result in a cumulatively considerable air quality impact.

Conclusion: This impact would be ***less than significant impact***.

Mitigation Measures: None are required.

Expose sensitive receptors to substantial pollutant concentrations (d): The proposed project would not expose sensitive receptors to substantial concentrations of localized PM_{10}, carbon monoxide, diesel particulate matter, or hazardous pollutants, naturally occurring asbestos, or valley fever, as discussed below.

LOCALIZED PM_{10}

As shown in Impact b), above, the project would not generate a significant impact for construction-generated, localized PM_{10}. Therefore, the project would not expose sensitive receptors to unhealthy levels of PM_{10}.

PM HOTSPOT

A $PM_{2.5}$ and PM_{10} Hotpot Analysis is not required for the project because it is not a Project of Air Quality Concern (POAQC). The following is provided for informational purposes, the Tulare County Association of Governments (TCAG) will be responsible for preparing the final determination and undertaking the interagency coordination (this is separate from CEQA).

The project is located in the San Joaquin Valley $PM_{2.5}$/ PM_{10} state and federal non-attainment area. According to the Environmental Protection Agency (EPA) Transportation Conformity Guidance, projects that are exempt or are not Projects of Air Quality Concern (POAQC) do not require hot spot analysis.

The Jaye Street Bridge Widening Project does not meet the criteria of an exempt project under 40CFR 93.126, nor does the project meet criteria for a POAQC as defined in the final rule by 40CFR 93.123(b)(1).

Based on guidance provided by the Environmental Protection Agency, Federal Highway Administration, and Federal Transit Administration (2006), this project is not considered to be a POAQC for the following reasons:

i. This project will not exceed the AADT threshold of 125,000. In addition, the traffic volumes would not exceed the 8% or 10,000 vehicle thresholds for total truck AADT for a POAQC.
ii. The average LOS for the project will not affect intersections that are at LOS D, E, or F. This project will improve safety, circulation, and decrease air pollution at the location.
iii. The area is fully developed and established truck routes will not change, nor will truck traffic increase significantly.

AADT projections for the City of Porterville – Jaye Street Bridge are:

Table 3.3-2
Average Annual Daily Traffic

Year	AADT
2014	18,570 (both directions)
2030	23,171 (both directions)

Source: Quad Knopf, Jaye Street Bridge Traffic Technical Memorandum, 2012

CARBON MONOXIDE HOTSPOT

As shown in Impact b), above, the project would not generate a CO hotspot. In addition, the existing background concentrations of CO are low and any CO emissions would disperse rapidly. The nearest SJVAPCD monitoring station located approximately 45 miles south of the project site (Bakersfield-Golden State Highway) shows the highest 1-hour and 8-hour CO concentrations for the past three years as 2.08 ppm and 1.46 ppm, respectively. The 1-hour and 8-hour CO standard are 20 ppm and 9 ppm, respectively. Therefore, the project would not expose sensitive receptors to unhealthy levels of CO.

DIESEL PARTICULATE MATTER

Construction equipment generates diesel particulate matter (DPM), identified as a carcinogen by the ARB. The State of California has determined that DPM from diesel-fueled engines poses a chronic health risk with chronic (long-term) inhalation exposure. The California Office of Environmental Health Hazard Assessment recommends using a 70-year exposure duration for determining residential cancer risks. Because of the project size and short duration, and the distance to the nearest sensitive receptor, the project construction would not pose a toxic risk to nearby residents.

NATURALLY OCCURRING ASBESTOS

The Department of Conservation, Division of Mines and Geology published a guide entitled A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain

Naturally Occurring Asbestos, for generally identifying areas that are likely to contain naturally occurring asbestos. The guide includes a map of areas where formations containing naturally occurring asbestos in California are likely to occur. Foothill areas within Tulare County are identified as areas with ultrafmafic rocks. The City of Porterville's General Plan, Chapter Seven: Public Health and Safety provides a more detailed map, Figure 7-2 that shows some foothill locations adjacent to the City as areas with ultramafic rocks. Those areas are not located near the project site. For this reason, the project is not anticipated to expose workers or nearby receptors to naturally occurring asbestos.

MOBILE SOURCE AIR TOXICS

The Jaye Street Bridge Widening project fits into the "Projects with Low Potential MSAT Effects" because it is a minor widening project with the design-year annual average daily traffic count less than 140,000. The purpose of the project is to upgrade the bridge to accommodate existing and projected travel demand, and eliminate an existing bottle neck to traffic flow. Because the bridge widening would increase the efficiency of the roadway, reduce congestion and eliminate idling of vehicles, MSATs are expected to decline. The project also includes bicycle and pedestrian lanes on both sides of the bridge, thereby enhancing opportunities for alternatives to automobile transportation.

This section includes a basic analysis of the likely MSAT emission impacts of the proposed project.

Year 2014 and General Plan year 2030 Annual Average Daily Traffic (AADT) volumes from the City of Porterville for the existing road project segment are as follows:

Table 3.3-3
Traffic Data – 2008, 2014 and 2035

Road Segment	AADT's		
	2008	2014	2030
Jaye Street (Olive Avenue to Springville Avenue)			
Northbound Lanes	15,735	18,570	23,171
Southbound Lanes	15,735	18,570	23,171

Source: Quad Knopf, Jaye Street Bridge Traffic Technical Memorandum, 2012

Jaye Street is a designated truck route in the City of Porterville. Truck percentages were estimated based on the Acoustical analysis prepared for the project (Brown-Buntin, April 2012). Traffic counts were conducted on April 2, 2012 (Monday) with the following results:

- Medium Trucks (Percent AADT) = 2.0 percent
- Heavy Trucks (Percent AADT) = 1.0 percent
- Combined = 3.0 percent

The amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same. The project is a minor widening project and design year traffic does not exceed 140,000 to 150,000 AADT on any road segment.

The 140,000 to 150,000 AADT is the criterion established by the Interim Guidance as a threshold for projects with low potential for MSAT effects. Additionally, diesel truck traffic is expected to remain at the same percentage of vehicle fleet mix for road segments near the project site, approximately 3.0 percent.

Table 3.3-4
Vehicle Miles Traveled – 2008, 2014 and 2030

Road Segment	Vehicle Miles Traveled 2008	2014	2030
Plano Street			
Between Olive Avenue and Springville			
Northbound Lanes	118,013	139,275	173,783
Southbound Lanes	118,013	139,275	173,783

Notes: VMT based on 7.5 mile trip length from Mobile 6.2 and AADT from Jaye Street Traffic Technical Memorandum, 2012.

Emissions of MSATs will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future with or without the project.

The additional travel lanes contemplated as part of the project will have the effect of moving some traffic closer to nearby residences; therefore, under the project alternative there may be localized areas where ambient concentrations of MSATs could be higher with the project than without. However, the magnitude and duration of these potential increases compared to the no-project alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a road is widened and, as a result, moves closer to receptors, the localized MSAT emissions of the project could be higher relative to the no-project alternative, but this would be offset due to increases in speeds and reductions in congestions (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions, that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Conclusion: Impacts would be ***less than significant.***

Mitigation Measures: None are required.

Odors (e): According to the GAMAQI, analysis of potential odor impacts should be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate; and

- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The proposed project is a replacement bridge project and does not contain land uses typically associated with emitting objectionable odors. Diesel exhaust and ROGs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not be at a level to induce a negative response.

The project site is not located within the Project Screening Levels distances from the common odor producing facilities presented in Table 4-2 of the GAMAQI. Therefore, development of the project would not create a significant odor impact.

Conclusion: This impact would be ***less than significant impact***.

Mitigation Measures: None are required.

3.4 *Biological Resources*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
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?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

The project is located in the southeastern portion of the City of Porterville on Jaye Street, approximately 0.30 miles south of Date Avenue and 0.40 miles north of SR-190. The Biological Study Area (BSA) for the proposed project includes the existing Jaye Street Bridge (Road 244), 1,000 feet to the east and west of the bridge, the bridge approaches, and 100 feet on either side of the bridge approaches. The project footprint is about 3.9 acres. Land use in the area surrounding the project site is primarily recreational (Tule River Parkway), residential and commercial.

VEGETATION COMMUNITIES

The project area is primarily urban outside of the riparian zone and adjacent parkway and disturbed areas along the river. In the vicinity of the Jaye Street Bridge, the riparian vegetation found along the river is Great Valley Mixed Riparian Forest (GVMRF). This is a tall, dense, winter-deciduous broadleafed riparian forest which is fairly well-closed. The overstory and midstory consists of willow (*Salix* sp.), cottonwood (*Populus fremontii*), and elderberry (*Sambucus Mexicana*). The understory is dominated by wild grape (*Vitis* sp.) and blackberry (*Rubus* sp.). The GVMRF is usually associated with low-gradient, depositional streams of the Great Valley, usually below 500 feet above mean sea level (AMSL), with fine-textured alluvial soils in areas with occasional overbank flooding. Herbaceous vegetation near the ordinary high-water line of the river (OHWM) included stinging nettle (*Urtica dioica*), monkeyflower (*Mimulus guttatus*), while upslope the herbaceous layer was dominated by ripgut (*Bromus diandrus*) and red brome (*Bromus madritensis*).

Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*) an invasive, noxious weed, were found to the east of the bridge along the south bank of the river. Portions of the rather steep channel banks near the bridge were dressed in riprap, and the in-stream habitat was generally degraded in this portion of the river.

The Tule River Parkway parallels the river on the terrace above the south bank. This city-maintained trail has planted willows and oaks and non-native ornamental trees and shrubs along a paved path which extends for several hundred meters to the east of the Jaye Street Bridge, and the paved portion terminates with a large parking area to the immediate southwest of the bridge. Ruderal vegetation characteristic of disturbed lands dominates the north bank of the river to the east of the bridge, while to the west is GVMRF. Away from the river, the narrow riparian corridor is flanked by the urban landscape of the City of Porterville.

SENSITIVE NATURAL COMMUNITIES

GVMRF is considered a sensitive natural community by the California Department of Fish and Game (CDFG). According to the CNDDB, two other sensitive natural communities occur within 10 miles of the BSA. Northern Claypan Vernal Pool occurs three miles southeast of the project area and Sycamore Alluvial Woodland occurs seven miles east of the project area.

SPECIAL-STATUS SPECIES

Prior to conducting field surveys a desktop review of literature resources was conducted to determine if the project area is located within the range of sensitive biological resources such as state and/or federally-listed threatened and/or endangered species. A list of special-status species that could potentially occur in the project area and a ten mile radius of the project area was compiled (see Appendix C) by accessing the California Natural Diversity Database (CNDDB) (2011), the California Native Plant Society (CNPS) (2011) online inventory and the United States Fish and Wildlife Service (USFWS) online database (accessed September 2011) for the USGS 7.5-minute quadrangle of Porterville in which the project area is located as well as the eleven surrounding quads of Gibbon Peak, Fountain Springs, Ducor, Sausalito School, Springville, Frazier Valley, Success Dam, Globe, Lindsay, Cairn's Corner, and Woodville.

For the purposes of this analysis, special-status species are those species:

- Listed as threatened or endangered under the Endangered Species Act (ESA) and those species formally proposed or candidates for listing;
- Listed as threatened or endangered under California ESA (CESA) or candidates for listing;
- Designated as endangered or rare pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected pursuant to California Fish and Game Code (Sections 3511, 4700, 5050);
- Designated as a species of special concern by CDFG; and
- Plants listed as rare under the California Native Plant Protection Act or considered by CNPS as List 1A, 1B, or 2 species.

SPECIAL-STATUS PLANT SPECIES

The special-status plant species reviewed in this document are listed in a table provided in Appendix C. This list was compiled based upon query results from CNDDB and the CNPS online inventory.

Eighteen special status plant species are known to occur in the project area or within a 10 mile radius of the project area (see Appendix C). Several regionally occurring species do not have potential to occur within the project area either because the distribution of the species does not

extend into the project area, or because the habitat and/or microsite conditions required by the species are not present.

Based upon results of the species review, there are no special-status plant species with potential to occur within the project site. Recorded occurrences of special-status plant species within 10 miles of the project site are shown in Figure 3.4-1.

SPECIAL-STATUS WILDLIFE SPECIES

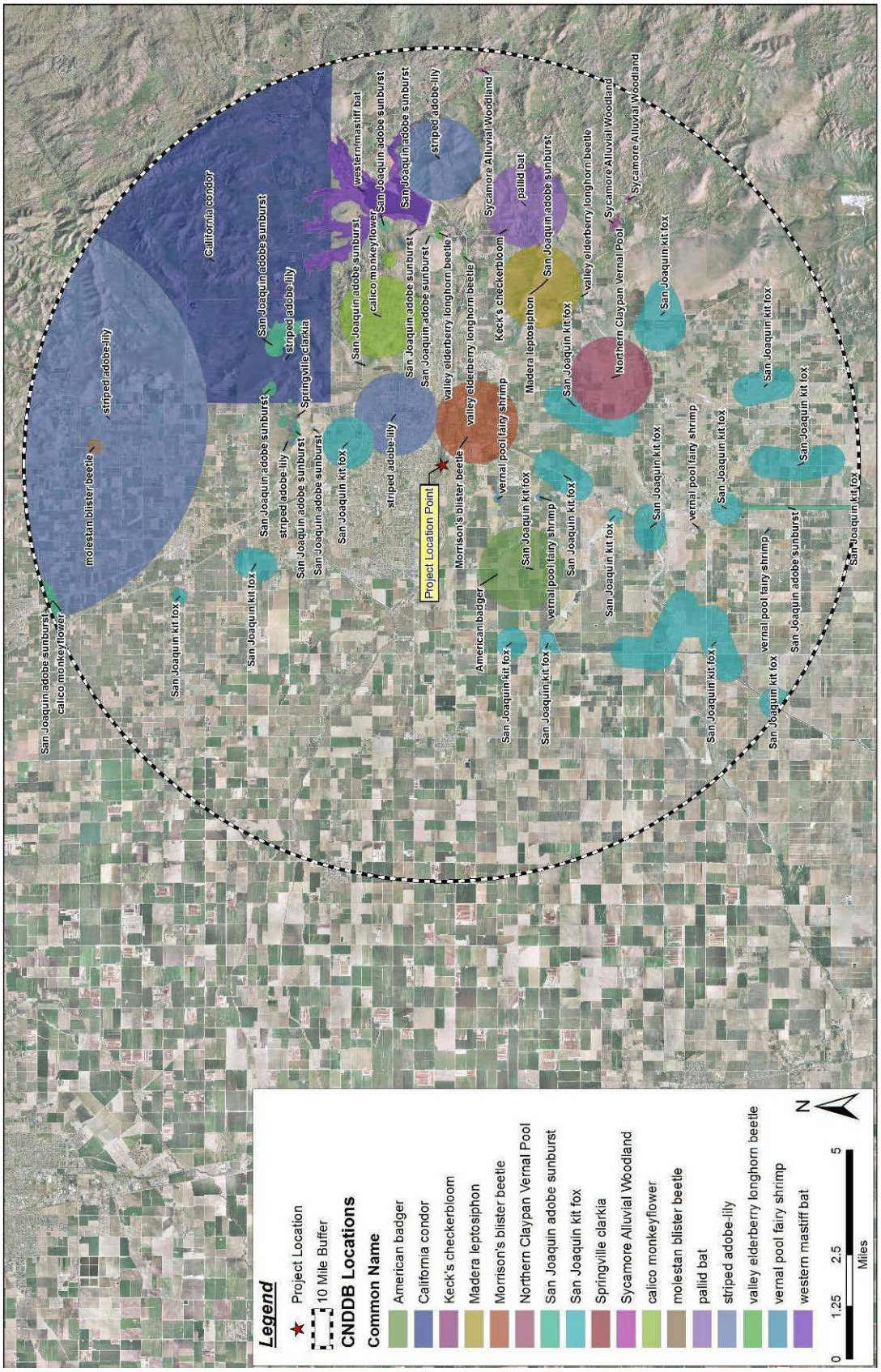
The special-status wildlife species considered for review in this document are included in a table provided in Appendix C. This list was compiled from the USFWS list and query results from CNDDB.

Twenty-eight special-status wildlife species are known to occur in the project area or within a ten mile radius of the project area (see Appendix C). Several regionally occurring species do not have potential to occur within the project area, either because the distribution of the species does not extend into the project area, or because the habitat or habitat elements required by the species are not present.

Recorded occurrences of special-status wildlife species within 10 miles of the project site are shown in Figure 3.4-1. Based upon results of the species review, it was determined that seven have the potential to occur in or immediately adjacent to the BSA and the BSA was specifically evaluated for these seven species. They are the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), American Badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). No special-status wildlife species were observed in the project area during the surveys. Based upon the field investigations performed, it was determined that the project area may support these special-status wildlife species. These species were determined to be absent from the project area at the time surveys, but could move into the area at any time.

FIELD SURVEYS

An initial biological survey of the project area, including a botanical survey, a bird and animal survey, and nesting bird survey was conducted on May 5, 2008. The north and south banks of the Tule River were walked approximately 1,000 feet to the east and west of the bridge. The underside of the bridge was inspected for potential roosting bats and nesting swallows. Trees along the riparian zone and within the project site were inspected for raptor nests, and blue elderberry plants were located. A second survey was conducted on June 13, 2008 to continue the elderberry shrub survey. A final biological survey was conducted on September 27, 2011 to identify: (1) elderberry plants within the project footprint and a 100-foot radius of the project footprint, (2) nesting raptors within 1,000 feet of the project area, (3) swallow nests located under the bridge, and (4) bats roosting under the bridge.



Quad Knopf

CNDDB RECORDS OF SPECIAL-STATUS SPECIES KNOWN WITHIN 10 MILES OF THE JAYE STREET BRIDGE WIDENING PROJECT SITE

Figure 3.4 – 1

Response:

This section describes the existing biological resources and potential effects from project implementation on the site and its surrounding area.

Substantial adverse effect on sensitive species (a): The project site is primarily urban outside of the riparian zone and adjacent parkway and disturbed areas along the river. The project site does not include suitable habitat for any special status plant species and none were observed during the surveys. They are considered absent from the project site. No impacts to special-status plant species would occur.

It was determined that seven special-status animal species have the potential to occur in or immediately adjacent to the project site. The BSA was specifically evaluated for these seven species: Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), American Badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). No special status wildlife species were observed in the BSA during the surveys. Based upon the field investigations performed, it was determined that the BSA may support these special status wildlife species. These species were determined to be absent from the BSA at the time surveys, but could move into the BSA at any time.

SPECIAL-STATUS INVERTEBRATES

Valley Elderberry Longhorn Beetle

Elderberry shrubs are the exclusive habitat for the valley elderberry longhorn beetle (Desmocerus californicus dimorphus; VELB), a federally threatened species. Any elderberry shrubs with one or more stems that are > 1 inch in diameter are considered to be potential habitat for VELB. Twenty-three elderberry shrubs with one or more stems > 1 inch in diameter are situated within the project footprint or within 100 feet of the project footprint. Eight elderberry shrubs are located within the project footprint, two elderberry shrubs are located within 20 feet of the project footprint, and thirteen elderberry bushes are located between 20 and 100 feet of the project footprint. One elderberry shrub is located outside of the 100 foot encroachment area but was included because of its close proximity to the project site. Potential exit holes were found on seven of the elderberry shrubs, three of which are located within 20 feet of the project site, and three of which are between 20 and 100 feet of the project site. No VELB were observed during the field surveys and it is possible that these exit holes were created by other wood boring insects, however because the project site contains exclusive habitat for the species, they are assumed to be present.

Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes. An additional 13 elderberry shrubs are located within 100 feet of the project site. Per conservation guidelines for the VELB complete avoidance may be assumed when a 100-foot buffer is established and maintained around elderberry shrubs containing stems

measuring ≥ 1 inch in diameter at ground level. The USFWS must be consulted before any disturbances within this buffer area are considered. Encroachment to within 20 feet of elderberry shrubs is often allowable provided that strict restoration and maintenance procedures are implemented.

Elderberry shrubs must be transplanted if they cannot be avoided by project activities. Elderberry shrubs are considered to be impacted if they are removed, pruned, or subjected to project activities within 20 feet of their driplines. Adversely affected elderberry shrubs should be transplanted to a suitable conservation area, and additional seedlings/cuttings should be planted at a compensation ratio pre-determined by the USFWS (see Appendix C). Compensatory plantings should also include a mix of native plants that are typically found in the understory and overstory of elderberry shrub communities. Compensatory planting ratios for elderberry seedlings/cuttings and associated native plants are dependent upon the maximum stem diameter of the affected elderberry shrub, and upon whether the affected elderberry shrub is in a riparian or non-riparian area and has potential exit holes.

Conclusion: The project could have a ***potentially significant impact*** on VELB.

Mitigation Measure #3.4.1: To avoid impacts to VELB, the following measures shall be implemented:

- Prior to the initiation of ground disturbance, a four foot tall, high visibility, temporary exclusionary fence will be installed at the maximum distance feasible for construction occurring within the 100 foot buffer of the elderberry shrubs remaining within the work area;

- If any elderberry shrubs will be encroached upon within 100 feet, an exclusion fence will be placed no closer than 20 feet from the drip line of the elderberry shrub;

- Any elderberry shrubs that will be encroached upon within 20 feet will be considered to be impacted;

- No work will be conducted within the established exclusion zones. In addition, all vehicle operations will be minimized around these bushes;

- All equipment will be staged away from the elderberry bushes, in previously disturbed areas;

- Signs that designate the buffer areas as VELB habitat, and that describe the federal protection status of the species, should be erected every 50 feet along the edge of the avoidance areas;

- A qualified biologist, skilled in the identification and habitat needs of the VELB, shall be present to monitor compliance with avoidance of all elderberry shrubs not transplanted or trimmed. The biological monitor shall be present anytime work is conducted in the vicinity of the elderberry shrubs, including trimming and transplanting. If, at any time, elderberry shrub impact avoidance measures are not followed, the biologist shall be given the power to suspend construction operations until such activities are corrected and an alternate course of action is taken that ensures no impacts to the elderberry shrubs will occur;

- Within 30 days after the completion of the project, a compliance report letter that documents the results of the implementation of mitigation measures will be completed and submitted to USFWS;

- Prior to the initiation of ground disturbing activities, a qualified biologist will conduct threatened and endangered species training. Personnel that will be working in the project site will be trained in the life history, habitat requirements, protection status, impact avoidance measures, and penalties under the federal endangered species act for unauthorized take of the VELB. A written handout will be provided to construction personnel that will include the above-mentioned information, illustrations and photographs of pertinent aspects of VELB life history. All personnel conducting work in the project site will be required to attend the training prior to working on site. A signup sheet will be maintained that provides written verification of all training meeting attendees;

- All vehicles and equipment entering the project site shall be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of off the project site. All construction materials will be staged away from all elderberry shrubs and any spills will be cleaned immediately. No herbicides, fertilizers or other chemicals that may harm the elderberry shrubs shall be used within 100 feet of the shrubs;

- Construction will permanently alter the portions of the 100-foot buffer zones within the work area surrounding the project. Following construction, areas within the buffer zones will be restored to the extent feasible; and

- Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes. These ten elderberry shrubs should be transplanted to a suitable conservation area. In addition, standard compensation plantings (*sensu* USFWS 1999) require that 153 elderberry seedlings/cuttings and 273 container stocks of associated native plants be planted in a conservation area. The associated native plants should include both overstory and understory species.

  The conservation area should provide at least 1,800 square feet for each transplanted elderberry shrub (USFWS 1999). As many as five elderberry shrubs and five associated native plants may be planted within the 1,800 square foot area. An additional 1,800 square .feet shall be provided for every additional 10 conservation plants. Therefore, the conservation area should cumulatively encompass a minimum of 90,720 feet (2.08 acres).

  The conservation area and plantings will continue to be monitored by means of two site visits by a qualified biologist between February 14th and June 30th of each of the 10 years succeeding the emplacement of the additional cuttings, seedlings and transplanted elderberry bushes. Surveys will include a population census of any beetles or exit holes observed, an evaluation of conservation plantings, and a general assessment of the habitat, adequacy of

protection measures, etc., as specified in the USFWS VELB conservation guidelines (1999). A report detailing the results of these surveys should be submitted by December 31st of each year of monitoring to the USFWS and the California Department of Fish and Game, and monitoring should continue to occur on this schedule. Successful conservation will be assumed if 60 percent of the elderberry plants and 60 percent of the associated native plants survive. If survival drops below 60 percent, the City must replace failed plantings within one year to bring survival above this level.

Alternatively, the City may purchase credits in an established mitigation bank to compensate for the loss of elderberry shrubs.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.1 would reduce the impact on VELB to a level that is ***less than significant with mitigation incorporated.***

SPECIAL-STATUS BIRDS

Swainson's Hawk

Although habitat within the project site is suitable to support this species, there were no Swainson's hawks observed in the vicinity of the project area during the site surveys. Nonetheless, the Swainson's hawk is known to occur in low numbers in the southern San Joaquin Valley and it could occur on or near the project site as an occasional transient forager.

Conclusion: Construction activities, including potential tree removal could have a ***potentially significant impact*** on Swainson's hawk and other raptors and migratory birds, as these species are sensitive to disturbance, particularly during the nesting season.

Mitigation Measure #3.4.2: To avoid impacts to Swainson's hawk, the following measures shall be implemented:

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG;

- All trees which are suitable for Swainson's hawk nesting that are within 2,640 feet of construction activities shall be inspected for nests by a qualified biologist;

- If potential Swainson's hawk nests are located, surveys to determine whether Swainson's hawks use those nests will be determined by conducting surveys at the following intensities, depending upon dates of initiation of construction:

Construction start	Survey period	Number of surveys	Timing
1 January to 20 March	1 January to 20 March	1	All day
21 March to 24 March	1 January to 20 March	1	All day
	21 March to 24 March	Up to 3	Sunrise to 1000 and 1600 to sunset
24 March to 5 April	1 January to 20 March	1	All day
	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
6 April to 9 April	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 9 April	Up to 3	Sunrise to 1000 and 1600 to sunset
	1 January to 20 March	1 (if all 3 surveys are performed between 6 and 9 April, then this survey need not be conducted)	All day
10 April to 30 July	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 20 April	3	Sunrise to 1200 and 1630 to sunset
31 July to 15 September	6 to 20 April	3	Sunrise to 1200 and 1630 to sunset
	10 to 30 July	3	Sunrise to 1200 and 1600 to sunset

A nest can be eliminated as a potential Swainson's hawk nest if another species of raptor is using the nest;

- If Swainson's hawks are detected to be nesting in trees within 600 feet of the construction area, construction will not occur within this zone until after young Swainson's hawks have fledged (this usually occurs by early June). The nest will be monitored by a qualified biologist to determine fledging date. If Swainson's hawks are found within the project area, the project site would be considered foraging habitat and compensation for foraging habitat would be required by CDFG at a ratio of 0.75 to 1 (0.75 acre for every 1.0 acre adversely affected);

- If other raptors are found nesting within 250 feet of the construction area, construction will be postponed until after young have fledged. The date of fledging will be determined by a qualified biologist. If construction cannot be delayed within this zone, the CDFG will be consulted and alternative protection measures required by the CDFG will be followed; and

- The removal of trees shall not occur during the breeding season (February 1st to September 15th). Trees slated for removal during the breeding season shall be surveyed by a qualified biologist prior to removal to ensure that there are no nesting birds occupying the tree.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.2 would reduce the impact on Swainson's hawk to a level that is ***less than significant with mitigation incorporated.***

Migratory Birds

Migratory birds, including raptors such as red-tailed hawks (*Buteo jamaicensis*) and Coopers hawks (*Accipiter cooperii*) could nest in the riparian corridor along the Tule River. Cliff swallows (*Petrochelidon pyrrhonota*) are also considered migratory birds. During the September 27, 2011 survey, two Cooper's hawks, one juvenile and one adult, were observed within the project vicinity. Both were initially perched in a willow tree within 1,000 feet of the project site, but they were also observed flying throughout the project site. One potential nest was located in a cottonwood tree on the southwest corner of the project site on the bank of the Tule River. The adult Cooper's hawk was observed perching in this tree. However, this tree was leafed out making it difficult to differentiate between a raptor nest and mistletoe. Also during the September 27, 2011 survey, swallow nests were observed attached to the underside of the Jaye Street Bridge. No swallows were observed during the surveys, but swallows are migratory and generally do not return to the San Joaquin valley until approximately mid-March. It is likely that swallows will inhabit the nests under the bridge from March through August or September. Most of the nests did appear to have been recently used, likely as recently as the last nesting season.

Conclusion: Tree or structure removal or nearby construction could have a ***potentially significant impact*** on raptors and other nesting migratory birds that have established themselves in the project area, and bridge reconstruction or demolition could have a ***potentially significant impact*** on nesting swallows, if swallows attempt nesting on the bridge.

Mitigation Measure #3.4.3: To avoid impacts to migratory birds, the following measures shall be implemented:

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG. The CDFG may need to be contacted to determine the appropriate buffer and a biologist may need to monitor the nesting activity to ensure proper avoidance measures have been implemented;

- Any trees scheduled for removal during the nesting season from February 15th to September 1st must first be inspected by a qualified biologist prior to removal. Active nest trees cannot be removed until nesting has been completed or removal has been deemed permissible by a biologist;

  It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor

shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows;

- If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows;

- Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated;

- Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be used;

- Weekly scalping, between February 15 and September 1, of partially completed nests is permitted to discourage nesting; and

- If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

SPECIAL-STATUS MAMMALS

American Badger

No sign of badgers were found during field surveys. No dens were observed in the project vicinity. If badgers utilize the project area, it is likely to be as transients.

Conclusion: During construction the project may have a ***potentially significant impact*** on American badger if they are present on the site through ground clearing and construction activities.

Mitigation Measure #3.4.4: To avoid impacts to American badger, the following measures shall be implemented:

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the American badger. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude American badger. The area within any such fence must be determined to be uninhabited by American badger prior to

initiation of construction. Off-road traffic outside of designated project areas shall be prohibited;

- To prevent inadvertent entrapment of badgers or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured badger is discovered, the procedures in this section must be followed;

- Badgers are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped;

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site;

- No firearms shall be allowed on the project site;

- To prevent harassment, mortality of badgers or destruction of dens by dogs or cats, no pets shall be permitted on the project site;

- 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 badger, or who finds a dead, injured or entrapped individual. The representative's name and telephone number shall be provided to the USFWS and CDFG;

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice;

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures an American badger shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist; and

- The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to an American badger 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, 2800 Cottage Way, Suite W2605,

Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.4 would reduce the impact on American badger to a level that is ***less than significant with mitigation incorporated.***

Bats

Marginal foraging habitat exists within the project area for bats. No bats or potential roosting habitat for bats was observed under the bridge. The bridge has a flat bottom and therefore is structurally lacking in areas that would offer optimal roosting opportunities for bats. Therefore, day or night roosting bats are not likely to use this bridge. Nevertheless, out of an abundance of caution pre-construction surveys for bats shall be implemented. The project would not result in impacts to bats, unless bats are found during pre-construction surveys.

Conclusion: During construction the project may have a ***potentially significant impact*** on bats if they are present on the site.

Mitigation Measure #3.4.5: To avoid impacts to bats, the following measures shall be implemented:

- Pre-construction surveys for bats of the bridge by a qualified biologist are required prior to bridge removal to ensure that bats have not moved into the bridge; and

- If bats are found to occupy the bridge during pre-construction surveys, a bat eviction and mitigation plan has to be prepared in consultation the CDFG. In this event the existing bridge cannot be removed until all bats have been successfully evicted and adequate mitigation measures, such as bat houses or a bat friendly bridge design, have been approved by the CDFG.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.5 would reduce the impact on bats to a level that is ***less than significant with mitigation incorporated.***

San Joaquin Kit Fox

No signs of kit fox were found during site surveys. It is unlikely San Joaquin kit fox would utilize this site because they tend to avoid riparian area due to potential competition from other predators and they are typically a grassland and open habitat species. However, they may be present on the site as a transient forager.

Conclusion: During construction the project may have a ***potentially significant impact*** on San Joaquin kit fox if they are present on the site through ground clearing and construction activities.

Mitigation Measure #3.4.6: To avoid impacts to San Joaquin kit fox, the following measures shall be implemented:

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit fox. The area within any such fence must be determined to be uninhabited by San Joaquin kit fox prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited;

- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such 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 procedures in this section must be followed;

- San Joaquin kit fox are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped;

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site;

- No firearms shall be allowed on the project site;

- To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on the project site;

- 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 individual. The representative's name and telephone number shall be provided to the USFWS and CDFG;

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice;

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist; and

- The Sacramento Fish and Wildlife Office and CDFG will 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.6 would reduce the impact on San Joaquin kit fox to a level that is ***less than significant with mitigation incorporated*.**

Have a substantial adverse effect on any riparian habitat or other sensitive natural community (b): The project site contains GVMRF along the river in the vicinity of the Jaye Street Bridge. GVMRF is considered a sensitive natural community by the CDFG. Construction within the project area will remove or disturb an undetermined amount of GVMRF. Permanent impacts would occur from the removal of cottonwood and red willows as necessary to accommodate the project. Temporary impacts would occur from trimming of cottonwoods and red willows during bridge improvements.

Conclusion: The project site contains GVMRF. Implementation of the proposed project would have a ***potentially significant impact*** on GVMRF.

Mitigation Measure #3.4.7: The following measures shall be implemented to protect GVMRF:

- Impacts to GVMRF and to other trees and shrubs will be avoided by installing Environmentally Sensitive Area (ESA) fencing around all riparian vegetation that can be avoided;

- A biological monitor will oversee installation of the ESA fencing and will ensure maintenance of the ESA fencing during construction on a weekly basis;

- Pre-construction training of all on-site workers. All on-site contractors and construction workers, including supervisors and inspectors shall attend a worker training and awareness program. At a minimum, the training program shall include discussions regarding the importance and status of the GVMRF and the ESA fencing. The construction workers shall

be made aware of their roles and responsibilities in implementing the project protection measures and other requirements.

Construction activities shall be monitored on a weekly basis by a qualified biological monitor to ensure that all construction fencing and exclusionary fencing is appropriately maintained and that all other measures are fully and faithfully implemented. The biological monitor and the construction team shall work cooperatively to ensure that all measures are effective. The biological monitor shall be on-call to assist with any issues which may arise (such as the "take" of a sensitive species). The biological monitor shall discuss any infractions of the measures with the construction contractor, remedial actions shall be implemented when needed, and solutions shall be devised to prohibit subsequent infractions.

A monthly progress report shall be prepared by the biological monitor, which shall be submitted to the CDFG. That report shall include dates of construction, types of construction activities occurring, descriptions of the measures that were implemented, infractions that occurred, and descriptions of any remedial actions that were taken. A final report shall be submitted once all construction has been completed and site restoration has been completed;

- Permanent and temporary impacts to GVMRF will be mitigated by implementing a GVMRF Revegetation and Restoration Plan which will be developed in consultation with the CDFG; and

- Compensatory Mitigation for impacts to GVMRF may also be required and will be determined during consultation with the CDFG.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.7 would reduce the impact on GVMRF to a level that is ***less than significant with mitigation incorporated*.**

Have a substantial adverse effect on federally protected wetlands (c): No wetlands occur in or near the BSA, and no impacts to wetlands will result from project activities. However, the project site spans the Tule River, which is a jurisdictional Waters of the United States (WOUS). Design plans will involve work within the OHWM. A U.S. Army Corp of Engineers (ACOE) 404 Nationwide Permit is required as the project will have cut and fill activities below the OHWM.

Conclusion: The project site contains drainages which are jurisdictional features. Implementation of the proposed project would have a ***potentially significant impact*** on wetlands and/or other Waters of the U.S. However, the California Department of Fish and Game has jurisdiction over any modifications to the bed, bank and channel of the creek.

Mitigation Measure #3.4.8: The applicant will be required to obtain the following permits: Section 404 permit from the ACOE, Section 401 permit from the Regional Water Quality Control Board (RWQCB), and a Section 1602 Streambed Alteration Agreement from CDFG. Impact acreage amounts will be determined when contract drawings are complete and can provide an accurate estimate as to the extent of proposed impacts to WOUS in result of project

construction. If impacts to WOUS exceed 0.5 acres then an application for a Section 404 Individual Permit would be required prior to project approval.

Effectiveness of Measure: Implementation of Mitigation Measure #3.4.8 would reduce the impacts to the watercourse to a level that is ***less than significant with mitigation incorporated*.**

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 (d): The project site does not support native resident or migratory fish species. Movements of wildlife generally fall into three basic categories: a) movements along corridors or habitat linkages associated with home range activities such as foraging, territory defense, and breeding; b) seasonal dispersal movements—typically one-way movements (e.g., juvenile animals leaving their natal areas or individuals colonizing new areas), and; c) temporal migratory movements – these movements are generally seasonal and involve a return to the place of origin (e.g., deer moving from winter grounds to summer ranges and fawning areas).

Use of the Tule River for a movement corridor is a possibility; however, since the bridge is already in existence, it is unlikely that construction would alter any existing movement corridors. The project site contains no designated wildlife corridors within its boundaries.

Conclusion: Construction on the project site would not put the continued existence of any native or migratory species in jeopardy and the impact would be ***less than significant***.

Mitigation Measures: None are required.

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (e): The City of Porterville's General Plan includes various policies for the protection of biological resources. The proposed project would not conflict with any of the adopted policies. In accordance with General Plan policies, a biological resource assessment has been prepared. The potentially significant impacts to special-status species would result in a conflict with local policies and ordinances. Mitigation measures have been incorporated to reduce these impacts to a less than significant level.

Conclusion: The proposed project would conflict with local policies or ordinances protecting biological resources without the incorporation of mitigation measures. This would be a ***potentially significant impact***.

Mitigation Measures: Implement Mitigation Measures #3.4.1 through #3.4.8.

Effectiveness of Measure: The proposed project would have a ***less than significant impact with mitigation incorporated*** with implementation of Mitigation Measures #3.4.1 through #3.4.8.

Impact #3.4.6 - Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (f): Several conservation and recovery plans apply to land in the City, including the Recovery Plan for Upland Species of the San Joaquin Valley and the Valley Elderberry Longhorn Beetle Habitat Conservation Plan. A review of Figure 6-4 (Special Status Species and Sensitive Vegetation) in the City of Porterville's General Plan indicates the project site is not within an area set aside for the conservation of habitat or sensitive plant or animal species pursuant to such plans. The nearest such areas are the Valley Elderberry Longhorn Beatle Conservation Area located approximately three miles east along the Tule River within the Yaudanchi Ecological Reserve.

Conclusion: ***No impact*** would occur.

Mitigation Measures: None are required.

3.5 *Cultural Resources*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064385?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

A Cultural Resources Survey Report and a Historic Property Survey Report were prepared for the project and are included in their entirety as Appendix D. The assessment was undertaken to identify any potential impact to cultural resources in the Area of Potential Effect (APE), defined to include a potential staging area next to the bridge, as well as the direct impact area. To complete the assessment, pre-field research was conducted followed by a complete pedestrian survey.

The following is a summary of the reports.

The Jaye Street Bridge was constructed in 1970 and consists of a single span bridge carrying two lanes of traffic over the Tule River. The bridge is in the same location as an older structure which it replaced in 1970. The bridge has been determined to be ineligible for listing on the National Register of Historic Places (Caltrans 2009).

The APE for the project was established in consultation with California Department of Transportation (Caltrans) Professionally Qualified Staff John Whitehouse and Local Assistance Engineer Kirk M. Anderson on August 1, 2011 (see Figure 2-2). The APE includes the 241 foot, 6 inch long bridge with an additional 600+ feet (on the north) and 350+ feet (on the south) of roadway reconstruction on each side of the bridge. Temporary construction easements and contractor staging areas are also included. These include a combination of existing bridge approach shoulders, fallow areas adjacent to the roadway to the north, and adjacent to the Tule River Parkway driveway (southwest), and or other areas that can be secured to store equipment and materials.

RECORD SEARCHES

Southern San Joaquin Valley Information Center

A records search was conducted at the Southern San Joaquin Valley Information Center (SSJVIC), California Historical Resources Information System. According to the SSJVIC records, there have been two surveys completed within the project APE with six additional surveys completed within a 0.25 mile radius of the project APE. The recorded Porterville Historic District which includes numerous structures that appear to be eligible for the National Register of Historic Places is situated about 0.5 mile north/northeast of the project APE on the north. No cultural resource sites listed on the National Register of Historic Places, the California Register of Historic Resources, California Points of Historical Interest, State Historic Landmarks, or the California Inventory of Historic Resources have been documented within 0.25 mile radius of the project APE.

Native American Heritage Commission Record Search

The Native American Heritage Commission (NAHC) was contacted on March 1, 2011, in order to determine whether Native American sacred sites have been identified either within or in close proximity to the project area. On March 11, 2011, the NAHC responded to the request for a search of the sacred lands file. The NAHC indicated in a written letter report that the file search failed to indicate the presence of Native American cultural resources within the 0.5 mile of the proposed project APE, however there are several Native American cultural resources in close proximity to the APE. Included with the response was a list of seven Native American representatives who may have knowledge of cultural resources within the project site. To ensure that all Native American resources were adequately addressed, letters to each of the seven listed tribal contacts were sent, which requested information regarding the presence of any known cultural resources on the project site or within a 0.25-mile radius beyond the project site. As of the date of this writing, no response has been received.

Pedestrian Survey

On July 11, 2011, the author conducted a cultural resources pedestrian survey of portions of the project APE. The project APE comprises the existing bridge and roadway from East Date Avenue on the north to Springville Avenue on the south, as well as the locations of three proposed temporary construction staging areas, two of which are located south of the Tule River on either side of Jaye Street, and a third location north of the Tule River adjacent Jaye Street on the east. The APE encompasses portions of the Tule River bottom, the steep adjacent river banks, and a public parkway which crosses under the bridge. The Tule River bottom was choked with high, dense vegetation, with the result that ground visibility over much of the accessible river bottom and adjacent banks was poor. Only those areas at the edges of the river terrace and along the public parkway were accessible and afforded fair to good surface visibility. Dense grasses obscured much of the surface visibility in the open fields north of the Tule River along both sides of Jaye Street. Vegetation in this area was periodically cleared with a hand trowel to view surface soils. Rodent backdirt piles were also inspected for evidence of cultural remains.

No cultural resources over 50 years of age were noted within the project APE. No historical resources or properties (i.e., cultural resources eligible for inclusion on the National Register of Historic Places or the California Register) were identified as a result of surface inspection of the APE.

Although the river bottom was not inspected due to dense vegetation and accessibility limitations, the probability of finding intact cultural deposits in this area is quite low due to historic flooding, deposition, and rechannelization.

Response:

Historic Resources (a): The records search conducted at the SSJVIC indicated that no cultural resource sites listed on the National Register of Historic Places, the California Register of Historic Resources, California Points of Historical Interest, State Historic Landmarks, or the California Inventory of Historic Resources have been documented within 0.25 mile radius of the project APE. No prehistoric resources were encountered during the pedestrian field survey. Accordingly, no impacts to historic resources will occur.

A letter was sent to the Native American Heritage Commission (NAHC) requesting a check of the Sacred Lands Files. The check failed to reveal any properties listed as Sacred Lands. The NAHC did provide an extensive list of individuals and groups to contact regarding the property. Letters were sent to the individuals identified by the NAHC. As of the date of this writing, no responses have been received. It is unlikely that the project will have any impact on Native American resources.

Conclusion: Although considered unlikely since there is no indication of any historic resources on the project site, subsurface construction activities associated with the proposed project could potentially damage or destroy previously undiscovered historic 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 historic resources.

Mitigation Measure #3.5.1: Although there is no recorded evidence of historic or archaeological sites on the project site, there is the potential during project-related excavation and construction for the discovery of cultural resources. The City of Porterville shall incorporate into the construction contract(s) for the project a provision that includes the following measures:

- Before initiation of construction or ground-disturbing activities associated with the project, the project proponent for all project phases shall require all construction personnel to be alerted to the possibility of buried cultural resources, including historic, archeological and paleontological resources;

- The general contractor and its supervisory staff shall be responsible for monitoring the construction project for disturbance of cultural resources; and

- If a potentially significant historical, archaeological, or paleontological resource, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains or trash deposits are encountered during subsurface construction activities (i.e., trenching, grading), all construction activities within a 100-foot radius of the identified potential resource shall cease until a qualified archaeologist evaluates the item for its significance and records the item on the appropriate State Department of Parks and Recreation (DPR) forms. The archaeologist shall determine whether the item requires further study. If, after the qualified archaeologist conducts appropriate technical analyses, the item is determined to be significant under California Environmental Quality Act, the archaeologist shall recommend feasible mitigation measures, which may include avoidance, preservation in place or other appropriate measure, as outlined in Public Resources Code section 21083.2. The City of Porterville shall implement said measures.

Effectiveness of Measure: Implementation of Mitigation Measure #3.5.1 would reduce the impact on historic resources to a level that is ***less than significant with mitigation incorporated.***

Archeological Resources (b): As indicated above, the records search and pedestrian survey did not identify any prehistoric resources. Nonetheless, the possibility exists that subsurface construction activities may encounter undiscovered archaeological resources. This would be a potentially significant impact. Implementation of mitigation measure #3.5.1 would require inadvertently discovery practices to be implemented should previously undiscovered archeological resources be located. As such, impacts to undiscovered archeological resources would be less than significant.

Conclusion: Subsurface construction activities could cause a ***potentially significant impact*** to previously undiscovered archeological resources. Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.

Mitigation Measures: Implement Mitigation Measure #3.5.1

Effectiveness of Measure: Implementation of Mitigation Measure #3.5.1 would reduce the impact on archeological resources to a level that is ***less than significant with mitigation incorporated.***

Paleontological Resources (c): There are no unique geological features or known fossil-bearing sediments in the vicinity of the project site. However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Therefore, this would be a potentially significant impact. Mitigation is proposed requiring standard inadvertent discovery procedures to be implemented to reduce this impact to a level of less than significant.

Conclusion: Subsurface construction activities could cause a ***potentially significant impact*** to previously undiscovered paleontological resources. Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.

Mitigation Measure #3.5.2: The City of Porterville will incorporate into the construction contract(s) a provision that in the event a fossil or fossil formations are discovered during any subsurface construction activities for the proposed project (i.e., trenching, grading), all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at the City of Porterville, who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, the City shall implement those measures, which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code section 21083.2.

Effectiveness of Measure: Implementation of Mitigation Measure #3.5.2 would reduce the impact on paleontological resources to a level that is ***less than significant with mitigation incorporated.***

Burial Sites (d): Although unlikely since neither the records research nor the field survey indicated the presence of such resources, subsurface construction activities associated with the proposed project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on-site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. The NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites, however compliance with regulations would reduce this impact to less than significant.

Conclusion: This impact would be ***less than significant***.

Mitigation Measures: None are required.

3.6 *Geology/Soils*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Expose people or structures to 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?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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 on- or off-site landslide, lateral spreading, subsidence, liquefaction of collapse?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems when sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

Response:

Seismic Effects (a-i through a-iii):

Fault Rupture (a-i): The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. Since no known surface expression of active faults is believed to cross the site, fault rupture through the site is not anticipated. ***No impacts*** would occur.

Strong Ground Shaking (a-ii): The City of Porterville's 2030 General Plan identified the City as being within the Uniform Building Code Seismic Zone 3. The California Geological Survey maintains a web-based computer model that estimates probabilistic seismic ground motions for any location with California. The computer model estimates the "Design Basis Earthquake" ground motion, which is defined as the peak ground acceleration with a 10-percent chance of exceedance in 50 years (475-year return period). For an alluvium soil type, the project site's estimated peak ground acceleration is approximately 0.22g.

Although the project site is located in an area of low seismic activity, the project could be affected by groundshaking from nearby faults. The closest active faults are the Owens Valley fault group and Sierra Nevada Fault Zone (50 miles to the east of the City, the San Andreas Fault Zone (70 miles to the west), and an unnamed fault group north of Bakersfield (40 miles to the south). Major earthquakes such as the 1906 San Francisco, 1952 Kern County, and 1983 Coalinga quakes were felt and caused some minor to moderate property damage in Porterville. Other potentially active faults exist near Tulare Buttes, about 30 miles north of Porterville. These faults are small and have exhibited activity in the last 1.6 million years, but not in the last 200 years. The project site is located on alluvial deposits, which tend to experience greater ground shaking intensities than areas located on hard rock. However, the distance to the faults that are the expected sources of the shaking would be sufficiently great that the effects should be minimal.

Project construction would be subject to roadway design standards and specifications, such as Caltrans, and the City of Porterville Public Works departments. Design standards and specifications are established to ensure that project construction meets all applicable seismic design standards for California. Seismic design standards account for peak ground acceleration, soil profile, and other site conditions and they establish corresponding design standards intended to protect public safety and minimize property damage. Compliance with the regulatory requirements of the design standards and specifications would reduce potential ground shaking impacts to ***less than significant***.

Seismic Related Ground Failure (including Liquefaction) (a-iii): The Natural Resources Conservation Service (NRCS) soil survey for the project area indicates that the soil that underlies the project area is composed of San Emigdio loam and Tujunga sand. The soils are comprised of loam, sandy loam sand, and fine sand and are considered suitable for roadway developments. However, the City of Porterville identifies areas near the Tule River to be potentially affected by liquefaction. The preliminary geotechnical investigation prepared by TRC Engineers, evaluated the soil for liquefaction potential during a seismic event. Based on the relative density of soils and low site seismicity, the potential for liquefaction and associated

adverse consequences is anticipated to be low. Additionally, project construction would be subject to roadway design standards and specifications, such as Caltrans, and the City of Porterville Public Works departments. Design standards and specifications are established to ensure that project construction meets all applicable seismic design standards for California. Seismic design standards account for potential ground failure and they establish corresponding design standards intended to protect public safety and minimize property damage. Compliance with the regulatory requirements of the design standards and specifications would reduce potential ground failure impacts to a ***less than significant*** level.

Landslides (a-iv): The City of Porterville's 2030 General Plan, Figure 7-1 (Geological and Soil Hazards) indicates that the project site is located on relatively flat topography and is not located adjacent to any steep slopes or areas that would otherwise be subject to landslides. Construction of the project would involve changes to the surface and subsurface soil conditions, however compliance with design standards and specifications would reduce potential landslide impacts to a ***less than significant*** level.

Conclusion: There would be ***no impact*** from fault rupture. Impacts from ground shaking, ground failure, and landslides would be ***less than significant*** with regulatory compliance.

Mitigation Measures: None are required.

Soil Erosion (b): The NRCS web soils survey determined that the project site consisted of two soils: San Emigdio loam and Tujunga sand. San Emigido loam is a fine sandy loam soil which is well drained and has a K-factor of 0.32, which falls within the category of high erosion potential as defined in the 2030 General Plan. The Tujunga sand is a soil (sand) that is somewhat excessively drained and has a K-factor of 0.17, which falls within the category of low erosion potential as defined in the 2030 General Plan. Construction activities associated with the proposed project would involve the import and export of soil, vegetation removal, grading, and excavation activities that could expose barren soils to sources of wind or water, resulting in the potential for erosion and sedimentation on and off the project site. As discussed in Section 3.9: Hydrology and Water Quality, the City of Porterville would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The NPDES stormwater permitting programs regulates stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) is required for construction activities that would disturb an area of one acre or more. The 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 sand bags, detention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. The implementation of a SWPPP and its associated BMPs would reduce potential erosion impacts to a level of less than significant.

Conclusion: Construction activities associated with the proposed project may cause potentially significant impacts from erosion. Compliance with regulatory measures would reduce impacts to a ***less than significant*** level.

Mitigation Measures: None are required.

Unstable Geologic Units (c): The project site currently supports the existing Jaye Street Bridge and roadway approaches. Infrastructure improvements proposed by the project would require soil engineering in accordance with California and City of Porterville standards and specifications. This process would involve removal of any unsuitable soils, the placement of engineered fill, and compaction in order to ensure that the structures to be constructed as proposed by the project are adequately supported. These practices would ensure the proposed project is located on stable soils and geologic units and would not be susceptible to settlement or ground failure.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

Expansive Soil Hazards (d): Soils in the project area are of San Emigdio loam and Tujunga sand series. Both the San Emigdio and Tujunga soils occur on alluvial fans, at slopes varying from 0 to 5 percent. These soils have low-clay content and possess low shrink-swell properties and are not considered expansive. Therefore, the development of the proposed project would not expose persons or structures to hazards associated with shrinking and swelling of expansive soils.

Conclusion: Impacts would be ***less than significant.***

Mitigation Measures: None are required.

Wastewater Disposal (e): No permanent wastewater facilities using septic tanks or alternative wastewater disposal systems would be required by the project. During construction, portable sanitation facilities (portable toilets) would be used. Sanitation waste would be disposed of in accordance with sanitation waste management practices at an approved wastewater treatment plant.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
3.7 Greenhouse Gas Emissions:				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Response:

Greenhouse gases (GHG) are identified as any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), halogenated fluorocarbons (HCFCs), ozone (O3), perfluorinated carbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF6). On December 7, 2009, the U.S. Environmental Protection Agency (EPA) issued an Endangerment Finding on the above referenced key well-mixed GHGs. These GHGs are considered "pollutants" under the Endangerment Finding. However, these findings do not themselves impose any requirements on industry or other entities.

The Global Warming Solutions Act (AB 32) was passed by the California Legislature and signed into law by the Governor in 2006. AB 32 requires that GHG emissions in 2020 be reduced to 1990 levels. GHG rules and market mechanisms for emissions reduction are required to be in place by January 1, 2012.

Greenhouse Gas Emissions (a): During construction activities, greenhouse gases would be emitted from construction equipment, vehicle, and truck exhaust. The SJVAPCD does not have thresholds or guidance regarding the significance of construction related emissions. However, that does not mean a significance finding should not be identified. For purposes of estimating GHG impacts the construction year was estimated to begin in 2012, if construction were to occur in later years, emissions would decrease slightly. Project construction would occur prior to the year 2020. The Sacramento Metropolitan Air Quality Management District's Road Construction model was used to estimate emissions from the proposed project. Project GHG emissions are shown below:

Table 3.7-1
Greenhouse Gas Construction Emissions (2012)

	Emissions (tons)	
	CO_2	**$MTCO_2e$**
2012 Bridge Construction	442.9	402
2012 Roadway Construction	406.2	368
Total	**849.1**	**770**

MTCO2e = (short tons of gas) x (global warming potential) x (0.9072 metric tons per short ton)

Global climate change is a cumulative impact. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. However, the impacts on global warming and climate change are indirect, not direct, and the emissions cannot be correlated with specific impacts based on currently available science.

A level of significance has not been established for temporary CO_2 emissions. The State of California has implemented regulations that require reporting of CO2 emissions from stationary sources with emissions of CO_2 that exceeds 25,000 metric tons per year from combustion sources. The proposed project will have 3 percent of this reporting threshold.

Emissions from construction are temporary in nature. The SJVAPCD has implemented a guidance policy for development projects within their jurisdiction. This policy, "Guidance for Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA," approved by the Board on December 17, 2009, does not address temporary GHG emissions from construction, nor does this policy establish numeric thresholds for ongoing GHG emissions. AB 32 requires that emissions within the State be reduced to 1990 levels by the year 2020. These construction emissions are minimal and would mainly occur prior to 2020; therefore, construction-generated GHGs are less than significant and no mitigation is required.

Conclusion: The impact would be ***less than significant***.

Mitigation Measures: There are none required.

Conflict with Plans (b): The City of Porterville does not have an adopted Climate Action Plan. Therefore, the plan adopted for the purpose of reducing the emissions of GHGs applicable to the proposed project is ARB's approved Scoping Plan, which will be used to determine significance for this criterion. As discussed previously, AB 32 requires that emissions within the State be reduced to 1990 levels by the year 2020. The project would generate temporary construction emissions prior to the year 2020; therefore, impacts would be less than significant.

Conclusion: This impact would be ***less than significant***.

Mitigation Measures: There are none required.

3.8 Hazards/Hazardous Materials

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which 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?	☐	☐	☐	☒
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 for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

Response:

Hazardous Materials (a, b,): Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. The use of such materials would be considered minimal and would not require these materials to be stored in bulk form. As such, the project would not create a significant hazard to the public through the routine use, transport, or disposal of hazardous materials. Since hazardous materials will not be stored in bulk form, no impacts are expected regarding potential upset and accidental conditions involving the release of hazardous materials into the environment. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, mitigation measures are incorporated which requires the project applicant to implement a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the project site.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

Exposure of Schools to Hazardous Materials (c): The project is located within 0.25 miles of a school site. The nearest school site is Porterville High School, which is located 0.20 miles from the project site. As discussed in Section 3.3, Air Quality, the project would not emit air pollutants at levels that would exceed health and safety exposure thresholds. In addition, as discussed in Hazard Materials (a, b), the project would not be classified as a large quantity user of hazardous materials or engage in potentially hazardous activities (e.g., bulk material storage, chemical processing, refining, etc.). For these reasons, it can be concluded that the project would not expose the school to unacceptable levels of risk.

Conclusion: Impacts would be ***less than significant.***

Mitigation Measures: None are required.

Hazardous Materials Site (d): The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such, no impacts would occur that would create a significant hazard to the public or the environment.

Conclusion: There would be ***no impact.***

Mitigation Measures: None are required.

Airport Land Use (e, f): Based on review of the 2030 General Plan, the project site is approximately 2.5 miles northeast of the Porterville Municipal Airport. The airport is a general utility airport located at an elevation of 443 feet with a 6,000 foot by 150 foot runway oriented northwest to southeast. There is also an abandoned 4,000 foot by 150 foot asphalt

runway oriented east to west on the southern side of the airport. Land use controls for this area are provided by the City of Porterville General Plan and Development Ordinance, and the Tulare County General Plan and Zoning Ordinance, Part 77.21. The City of Porterville has also prepared an airport master plan for the Porterville Municipal Airport. The project site is outside the height and safety restriction zones imposed by these plans.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

Adopted Emergency Response Plan or Emergency Evacuation Plan (g): Traffic will use the existing bridge during stage one with one traffic lane open in each direction, while the eastern portion is constructed. During stage two, the traffic will be moved onto the new eastern portion, and the existing bridge would be replaced or rehabilitated. Temporary construction activity would be expected to create temporary delays in traffic. Such delays would be typical for a construction project of this nature and would not be expected to interfere with an adopted emergency response plan or emergency evacuation plan; furthermore, construction contract provisions would require the preparation of a traffic management plan to address and minimize potential delays to emergency response plans. As such, impacts would be less than significant. Potential traffic impacts are discussed further in the Traffic/Transportation section.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

Wildfires (h): According to the California Department of Forestry and Fire Protection, the project site is located in a moderate fire hazard zone. A review of the 2030 General Plan, Figure 7-4 (of the General Plan) also shows the project site as a moderate fire hazard safety zone. The areas surrounding the project site contains developed/disturbed land consisting of recreational, residential and commercial uses. Habitat immediately adjacent to the current bridge structure and proposed bridge consists of riparian habitat, shrubs and trees. There is a low potential for wildland fires within these parameters, nevertheless, typical construction related impacts include the potential fire threat associated with equipment and vehicles coming in contact with wildland/vegetative areas. Construction vehicles and equipment such as welders, torches, and grinders may accidentally spark and ignite vegetation within the study area.

Conclusion: The increased risk of fire during the construction of the project would be similar to that found at other roadway construction sites and would be considered potentially significant.

Mitigation Measure #3.8.1: Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Mitigation Measure #3.8.2: Construction contractors shall ensure that during construction, staging areas, building areas, and/or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak.

Effectiveness of Measures: With the implementation of Mitigation Measure #3.8.1 and #3.8.2, potential wildland fires would be reduced to a level of ***less than significant with mitigation incorporated***.

3.9 *Hydrology/Water Quality*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☐
e) 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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Response:

Water Quality (a, f): Potential short-term impacts to surface waters may occur during construction, mainly from exposure of loose soil during construction-related activities, such as grading and excavation. Suspended solids, dissolved solids, and organic pollutants may enter surface water bodies while soils are disturbed and dust is generated. In addition, construction activities have the potential to generate waste materials (concrete, metal, rubble, etc) or discharge pollutants to surface waters from construction wastes and fuel spills/leaks.

To mitigate these potential effects, required erosion and pollutant control measures would be implemented in compliance with the NPDES General Permit prior to commencement of construction. Provisions of the General Permit require a site-specific plan to be developed that would address each construction component of the project. A Stormwater Pollution Prevention Plan (SWPPP) would be developed prior to any ground disturbance at the project site and would include practices to reduce erosion and surface water contamination during construction. The SWPPP would identify Best Management Practices (BMPs) to address erosion and discharge of construction pollutants as well as the location of such control measures.

Water quality BMPs identified in the SWPPP may include, but would not be limited to the following:

- Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months;

- Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures;

- A spill prevention and countermeasure plan shall be developed which will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan will also require the proper storage, handling, use, and disposal of petroleum products;

- Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction;

- Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater;

- Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events;

- Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff;

- Disturbed areas will be revegetated after completion of construction activities;

- All necessary permits and approvals shall be obtained;

- Sanitary facilities shall be provided for construction workers; and

- Hazardous materials shall be stored in appropriate and approved containers, maintaining required clearances, and handling materials in accordance with the applicable federal, state and/or local regulatory agency protocols.

Water quality standards will also be addressed through compliance with regulatory requirements described in permits, such as the Clean Water Act (CWA) Section 401 certification and the 1600 Streambed Alternation Agreement. The contractor will assign a water pollution control manager, who will train workers, and manage a project plan based on state and federal requirements, including Caltrans, to reduce potential impacts to water quality, soils, and other

resources. The contractor(s) will perform water pollution control work in conformance with the requirements in the SWPPP and Water Pollution Control Program (WPCP) Preparation Manual and its addenda in effect on the day the Notice to Contractors is dated.

Conclusion: Compliance with regulatory measures would ensure that impacts to water quality are ***less than significant***.

Mitigation Measures: None are required.

Groundwater (b): The proposed project would require minimal amounts of water for dust control purposes during construction. All water required during construction of the project would be imported to the proposed project site from adjacent sources with existing entitlements. Upon completion, the proposed project would not draw water and deplete existing groundwater supplies.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

Surface Water (c, d): The Jaye Street Bridge crosses the Tule River, which flows through the central portion of the City, and is one of the principal watercourses in Tulare County. Under normal conditions, flow in this River is regulated by Success Dam, located approximately five miles upstream from Porterville. Minor streambed alteration of the north and south banks would occur to accommodate the project. Construction will occur during the warmest months (June 1 through October 15), when the water is at its lowest level and flows are reduced. Should water be present during this period, a temporary cofferdam will be used to divert the stream. The stream diversion measure would limit the exposure of disturbed substrates to moving water and ensure that substantial erosion or siltation does not occur.

It is expected that the demolition and construction activity will be monitored by the State Department of Fish and Game ACOE, the principal permitting agencies for streambed alteration work. The contractor will take necessary precautions to assure that water quality from the project construction does not impact the quality of surface water.

Conclusion: The proposed project would not substantially alter the existing drainage pattern at the completion of the project. Erosion, siltation, and/or increased runoff in the Tule River would not result from the project.

Mitigation Measure #3.9.1: If construction or demolition is necessary during a time when the River is flowing, a small cofferdam would be constructed to divert the water.

Effectiveness of Mitigation Measure #3.9.1: The impact would be ***less than significant with mitigation incorporated.***

Stormwater (e): Construction will not require the use of significant amounts of water that would result in an increase in runoff or result in flooding. Additionally, the contractor(s) will

perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. Compliance with regulatory measures would ensure that stormwater impacts are less than significant.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

100-Year Flood Hazard (g, h): According to the Flood Insurance Rate Map (Community Panel 06107C1642E), the project area is in Zone AE, the 100-year flood zone. However, the project would not place any housing within the 100-year flood zone. No buildings or other structures would be placed in the project area which would impede or redirect the flood flows.

Conclusion: ***No impacts*** would occur.

Mitigation Measures: None are required.

Dam/Levee Failure (i): Flows into the Tule River are controlled by the Success Dam located approximately five miles upstream from the City. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event such as an earthquake. Dams must be operated and maintained in a safe manner, which is ensured through inspections for safety deficiencies, analyses using current technologies and designs, and taking corrective actions as needed based on current engineering practices.

The project site is located within the Success Dam inundation area, as shown on Figure 7-3 of the 2030 General Plan. This inundation area runs through Porterville, to a location downstream of Corcoran, a distance of approximately 44 miles. As previously noted, the project site is located within the 100-year flood zone. The ACOE) is in the process of completing an environmental impact statement for reinforcing the strength of the dam in the event of seismically induced failure. The project site is within the 0.5-hour to 1-hour inundation zone of Success Dam. In the event of a dam failure, most of the City would be flooded within one hour. The Porterville Emergency Operations Plan (EOP), adopted in 2004, includes planning and response scenarios for seismic hazards, extreme weather conditions, landslides, dam failure and other flooding. The City has designated several evacuation routes through Porterville to be used in case of catastrophic emergencies. In the unlikely event that the dam fails before the ACOE's proposed dam reinforcement completion date of 2014–2015, the dam owner would follow the emergency action plan (EAP) developed for Success Dam. The EAP includes a notification flowchart, early detection systems, notification for warning and evacuation by state and local emergency management officials, steps to moderate or alleviate the effects of a dam failure, and inundation maps. As such, impacts related to exposure of people or structures to a risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam would be less than significant.

Conclusion: This impact would be ***less than significant.***

Mitigation Measures: None are required.

Seiche/Tsunami (j): There are no inland water bodies that could be potentially susceptible to a seiche in the project vicinity. This precludes the possibility of a seiche inundating the project site. The project site is more than 100 miles from the Pacific Ocean, a condition that precludes the possibility of inundation by tsunami. There are no steep slopes that would be susceptible to a mudflow in the project vicinity, nor are there any volcanically active features that could produce a mudflow in the City of Porterville. This precludes the possibility of a mudflow inundating the project site. No impacts would occur.

Conclusion: There would be ***no impact.***

Mitigation Measures: None are required.

3.10 Land Use/Planning

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Response:

Divide Established Community (a): The City of Porterville has identified improvements to the Jaye Street Bridge and the bridge approaches in its 2030 General Plan. The project would alleviate congestion, improve the level of service, and reduce commute times for motorists. Development at this site would not result in any surrounding land use change, including the division of a community.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

Conflicts with Land Use and Zoning (b): The project does not involve any change to, or conflict with, applicable land use plans, policies, or regulations.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

Conservation Plan (c): A review of the 2030 General Plan, Figure 6-4 (Special Status Species and Sensitive Vegetation) indicates the project site is not within an adopted or proposed conservation plan area. The nearest such plan area is the Valley Elderberry Longhorn Beatle

Conservation Area, located along the Tule River over 2.5 miles away, within the Yaudanchi Ecological Reserve. There would be no impact to an adopted or proposed conservation plan area.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

3.11 Mineral Resources

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Response:

Mineral Resources (a, b): As shown in Figure 6-3 of the 2030 General Plan, the area along the Tule River contains various State classified mineral resource zones (MRZ-2a, MRZ-2b, and MRZ-3a). The project site is designated as an MRZ-2a zone, which indicates significant aggregate deposits may be present. While this area was once suitable for mining operations, it is now surrounded by urban development and as such, extraction and transport of mineral resources would conflict with the surrounding urban uses. Furthermore, the project site is currently disturbed and is used for bridge and roadway purposes. As such, the project would have less than significant impacts on mineral resources.

Conclusion: This impact would be ***less than significant.***

Mitigation Measures: None are required.

3.12 Noise

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Response:

The following analysis is based on information contained in the Noise Study Report, included in its entirety as Appendix E to this Initial Study/Mitigated Negative Declaration.

FEDERAL HIGHWAY ADMINISTRATION AND CALTRANS STANDARDS

According to Title 23 Code of Federal Regulations (CFR) Part 772.5 of the Federal Highway Administration (FHWA) standards, traffic noise impacts occur when the predicted traffic noise level in the design year approaches or exceeds the Noise Abatement Criteria (NAC) specified by 23 CFR 772 or substantially exceeds the existing noise level. A noise level is considered to approach the NAC for a given activity if it is within 1 dB (A-weighted decibels) of the NAC.

A substantial noise increase occurs when the project's worst-hour design-year noise level, as defined by the equivalent sound level (Leq), exceeds the existing worst-hour noise level by 12 dB or more.

Table 3.12-1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area.

Table 3.12–1
Activity Categories and Noise Abatement Criteria (NAC)

Activity Category	NAC, Hourly A-Weighted Noise Level (dBA – Leq [h])	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in categories A or B above
D	--	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Noise Study Report, Brown-Buntin Associates, Inc., April 2012

In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from

the roadway or physically shielded in a manner that prevents an impact on exterior activities, the interior criterion (Activity Category E) is used as the basis for determining a noise impact.

Noise Abatement Criteria

23CFR 772 of the FHWA standards and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project "approach or exceed" Noise Abatement Criteria (NAC) defined in 23 CFR 772 (refer to Table 3.12-1) or when the predicted design-year noise levels with the project substantially exceed existing noise levels.

Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol. The overall reasonableness of noise abatement is determined by considering factors such as cost, absolute predicted noise levels, predicted future increase in noise levels, expected noise abatement benefits, build date of surrounding residential development along the highway, environmental impacts of abatement construction, opinions of affected residents, input from the public and local agencies, and social, legal, and technological factors.

23 CFR 772 states that for noise abatement to be considered acoustically feasible, it must be predicted to provide at least a 5 dB minimum reduction at an impacted receptor. Additionally, 23 CFR 772 now requires an acoustic design goal for abatement. The Caltrans acoustic design goal is that noise abatement must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receivers, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. A cost-per-residence allowance is calculated for each benefited residence (i.e., residences that receive at least 5 dB of noise reduction from a noise barrier). The 2011 base allowance is $55,000. Additional allowance dollars are added to the base allowance based on absolute noise levels, the increase in noise levels resulting from the project, achievable noise reduction, and the date of building construction in the area. Total allowances are calculated by multiplying the cost-per-residence by the number of benefited residences. If the total allowance for all evaluated noise barriers is more than 50 percent of the estimated construction cost, the allowance per residence is modified to a reduced value.

Construction Noise and Vibration

There are no Caltrans or FHWA standards for construction noise or 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 vibration velocity level of 80 VdB 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.

LOCAL NOISE STANDARDS

City of Porterville General Plan Update

Under the 2030 General Plan Noise Element, noise levels from 55 dB to 60 dB are considered "normally acceptable" for unshielded single-family residential development. Noise levels from 60 dB to 70 dB are considered within the "conditionally acceptable" range, while noise levels 70 dB to 75 dB are considered "normally unacceptable" for single-family residential use. For multi-family uses, noise levels from 55 db to 65 db are considered "normally acceptable". Noise levels from 65 dB to 70 dB are considered within the "conditionally acceptable" range, while noise levels from 70 to 75 dB are considered "normally unacceptable" for multi-family uses. Noise levels from 50 dB to 70 dB are considered acceptable for commercial retail and office uses along with public uses such as schools, churches, hospitals, and neighborhood parks. Noise levels above 80 dB are considered "clearly unacceptable" for most uses.

Construction Noise and Vibration

The City of Porterville has set forth vibration guidelines described in the Development Ordinance Section 307.06, which states that "no vibration shall be produced that is discernable without the aid of instruments by a reasonable person at the lot lines of the site. Vibration from temporary construction, demolition, and vehicles that enter and leave the subject parcel (e.g., construction, equipment, trains, trucks, etc.) are exempt from this standard." In reference to Development Ordinance Section 307.06, the project is exempt from local vibration standards.

EXISTING NOISE LEVELS

The predominant existing noise source affecting the project site and surrounding area is traffic on Jaye Street and other more distant roadways. Existing land uses adjacent to Jaye Street in the project area include residences, commercial buildings and vacant land. The closest potentially impacted receivers in the project area are single-family residences on the east and west sides of Jaye Street, north of the bridge, and a multi-family apartment complex (Villa Robles Apartments) on the west side of Jaye Street, south of the bridge.

The posted vehicle speed limit on Jaye Street in the project area is 35 miles per hour (mph). It was observed through vehicle pacing that 35 mph closely represents the speed actually travelled by vehicles on the section of Jaye Street affected by the project. The project roadway is generally flat relative to adjacent uses.

Existing traffic noise levels were measured at two locations on April 2, 2012. The monitoring sites were located in close proximity to two of the potentially impacted receivers, approximately 40 feet

west and 60 feet west of the center of the existing roadway. The noise monitoring sites are noted on Figure 1 of the Noise Study Report in Appendix E.

Noise measurements were conducted for 15-minute sample periods at each of the two short-term monitoring sites (ST-1 and ST-2). Concurrent traffic counts were conducted during the measurement periods and projected for a one-hour period. Noise measurement and traffic count data are summarized in Table 3.12-2.

Table 3.12–2
Jaye Street Bridge - Summary of Noise Measurement Data and Traffic Counts

Location **Measurement Start Time**	**ST-1** **1:45 PM**	**ST-2** **2:10 PM**
Distance, feet (from center of Roadway)	60	40
Observed Number of Autos per hour	940	828
Observed Number of Medium Trucks per hour	16	48
Observed Number of Heavy Trucks per hour	4	12
Posted/Observed Speed (Miles per Hour)	35	35
Leq dBA (Measured)	62.0	66.6

Source: Brown-Buntin Associates, Inc., April 2012

Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (a):

The dominant noise source affecting the project site is traffic from Jaye Street. Residential land uses in the project area are represented by single-family residences located north of the Jaye Street bridge and multi-family residential units located south of the Jaye Street Bridge. In order to determine the potential noise impacts of the project, three receivers were analyzed for the single-family residences north of the Jaye Street bridge and two receivers were analyzed for the multi-family units south of the Jaye Street bridge (one at ground level and another at the second floor level) (please refer to Figure 1 in the Noise Study Report, Appendix E).

Receiver 1: Receiver 1 is a single-family house located on the west side of Jaye Street about 150 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

Receiver 2: Receiver 2 is a single-family house located on the west side of Jaye Street about 240 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

Receiver 3: Receiver 3 is a single-family house located on the east side of Jaye Street about 240 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

Receiver 4: Receiver 4 is a ground floor multi-family apartment unit located on the west side of Jaye Street about 325 feet north of Springville Avenue. This area is generally flat. The sensitive receiver location was assumed to be the outdoor patio of the residence, which faces the roadway. No sound barriers or topographical shielding occurs between the roadway and the residential use.

Receiver 5: Receiver 5 is a second floor multi-family apartment unit located on the west side of Jaye Street about 325 feet north of Springville Avenue. This area is generally flat. The sensitive receiver location was assumed to be the outdoor patio of the residence, which faces the roadway. No sound barriers or topographical shielding occurs between the roadway and the residential use.

PROJECT-RELATED NOISE LEVELS

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, shielding features (e.g., topography and buildings), noise barriers, ground type, and receivers.

Traffic noise was evaluated under existing conditions, future (2030) conditions and future (2030) no project conditions. Existing and Future Average Daily Traffic (ADT) traffic volumes were provided by the City of Porterville. Peak hour volumes were estimated by Brown-Buntin Associates (BBA) and assumed to be 10 percent of the ADT volumes. Posted speed limits are 35 miles per hours. The medium and heavy truck mix factors were derived from BBA field observations. Table 3.12-3 summarizes the traffic volumes and assumptions used for modeling existing and future conditions.

Table 3.12-3
Jaye Street Bridge - Traffic Noise Modeling Assumptions

	Existing	Project (2030)	No Project (2030)
Annual Avenue Daily Traffic (AADT)	15,735	23,171	23,171
Typical Peak Hour Volume	1,574	2,248	2,248
Day/Night Split (Percentage)	90/10	90/10	90/10
Posted Vehicle Speed	35	35	35
Percent Medium Trucks (Percent AADT)	2	2	2
Percent Heavy Trucks (Percent AADT)	1	1	1

Source: Brown-Buntin Associates, Inc, April 2012; City of Porterville

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at the field measurement locations (ST-1 and ST-2). For each receiver, traffic volumes counted during the short-term measurement periods were normalized to 1-hour

volumes. These normalized volumes were utilized to calculate traffic noise levels with the TNM for the conditions observed during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model and to judge whether additional calibration of the model was necessary. The predicted sound levels were within 1 dB of the measured sound levels. This is considered reasonable agreement between measured and predicted sound levels and no adjustments to the model were necessary.

Table 3.12-4 summarizes the traffic noise modeling results for existing conditions (Year 2011), future conditions (2030) and future conditions without the project (2030 No Project). Year 2030 traffic noise levels are compared to existing conditions and 2030 No Project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts under 23 CFR 772. The four proposed Jaye Street Bridge widening alternatives previously discussed would result in the same roadway alignments north and south of the bridge. Noise levels at the impacted receivers would therefore not differ in respect to the four alternatives; as such, it was not necessary to analyze each proposed alternative separately.

Table 3.12-4
Jaye Street Bridge – Predicted Existing and Future Noise Levels, dB Leq

Receiver	Land Use	Existing db Leq	2030 No Project db Leq	2030 Project dbLeq	Project minus No Project dbLeq	Activity Category	Impact
1	Residential	56	58	57	-1	B	None
2	Residential	53	54	54	0	B	None
3	Residential	55	56	58	2	B	None
4	Residential	**66**	**68**	**67**	-1	B	Sound Level
5	Residential	**66**	**68**	**67**	-1	B	Sound Level

Note: Values in bold represent noise levels that approach or exceed the NAC
Sources: Brown-Buntin Associates, Inc, April 2012; City of Porterville

FHWA AND CALTRANS

Modeling results in Table 3.12-4, indicate that predicted changes in future traffic noise levels with the project would be less than substantial (less than 12 dB) and would not be considered significant.

The predicted traffic noise levels for the future (2030) with-project conditions approach or exceed the NAC of 67 dBA Leq(h) for Activity Category B land uses at the multi-family residences south of the Jaye Street bridge (receivers 5 and 6). Therefore, traffic noise impacts are predicted to occur at Activity Category B land uses within the project area, and noise abatement must be considered. It should be noted, however, that the predicted traffic noise levels for the future (2030) no project conditions also approach or exceed the NAC, and that predicted noise levels at receivers 5 and 6 would actually decrease slightly as a result of the project. Due to distance from the roadway and acoustical shielding provided by the houses, traffic noise levels at the remaining analyzed receivers do not approach or exceed the NAC.

NOISE ABATEMENT ANALYSIS

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Such impacts have been predicted for the first row of residential units within the Villa Robles Apartments south of the Jaye Street bridge. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

All of these abatement options have been considered. However, because of the configuration and location of the project, abatement in the form of noise barriers is the only abatement that is considered to be feasible.

The analyzed noise barrier has been evaluated for feasibility based on achievable noise reduction, and a cost allowance was calculated. Refer to the Protocol for the definition of the critical design receiver (receptor).

For any noise barrier to be considered reasonable from a cost perspective the estimated cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. The cost calculations of the noise barrier should include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining walls. Construction cost estimates are not provided in the Noise Study Report (NSR), included as Appendix E of this IS/MND, but are presented in the Noise Abatement Decision Report (NADR). The NADR is a design responsibility and is prepared to compile information from the NSR, other relevant environmental studies, and design considerations into a single, comprehensive document before public review of the project. The NADR is prepared by the project engineer after completion of the NSR and prior to publication of the draft environmental document. The NADR includes noise abatement construction cost estimates that have been prepared and signed by the project engineer based on site-specific conditions. Construction cost estimates are compared to reasonableness allowances in the NADR to identify which wall configurations are reasonable from a cost perspective.

The design of the noise barrier presented in the NSR is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the project. Preliminary information on the physical location, length, and height of noise barriers is provided in the NSR. If pertinent parameters change substantially during the final project design, preliminary noise barrier designs may be modified or eliminated from the final project. A final decision on the construction of the noise abatement will be made upon completion of the project design.

The traffic noise modeling results in Table 3.12-4 indicate that traffic noise levels at the Villa Robles Apartments along the west side of Jaye Street are predicted to be approximately 67 dBA Leq(h) for future (2030) conditions, and that future (2030) traffic noise level due the project will decrease by approximately 1 dB. Because the predicted noise level for future (2030) conditions approaches or exceeds 67 dBA Leq(h), traffic noise impacts are predicted at the residences in this area, and noise abatement must be considered. Detailed modeling analysis was conducted for a barrier located at the edge of the Jaye Street right of way, about 60 feet from the proposed roadway centerline. The barrier evaluated is identified as B-1 in Figure 1 of the NSR (Appendix E). Barrier heights in the range of 6 to 14 feet were evaluated in 1-foot increments. For safety reasons Caltrans Highway Design Manual states that noise barriers should not exceed 14 feet in height when located 15 feet or less from the edge of the traveled way. Reasonable allowance calculation sheets for this barrier are provided in the NSR. Table 3.12-5 summarizes the results of the barrier analysis for the apartment units.

A barrier height of eight feet would provide approximately 7 dB reduction for the ground level apartment units, and therefore would meet the required Caltrans design goal. This barrier appears to be feasible, and would reduce traffic noise levels for the seven ground floor apartment units located along the west side Jaye Street. However, the barrier will not provide a significant noise level reduction to the seven upstairs units facing Jaye Street. The preliminary barrier design extends from the access drive just south of the Jaye Street Bridge to intersection of Jaye Street and Springville Avenue. Table 3.12-5 indicates that a barrier constructed to the maximum height of 14 feet would only provide a noise level reduction of 4 dB at the upstairs units, and therefore is not considered feasible in regards to the second floor apartment units.

CITY OF PORTERVILLE

The City of Porterville uses the annual average Day-Night Average Level (DNL) metric for determining land use compatibility with respect to transportation noise sources. Traffic noise exposure in terms of the DNL was calculated for future conditions with and without the project using the data shown in Table 3.12-2.

At the closest residential receiver (Villa Robles Apartments), the future DNL was 67.1 dB without the project and 66.2 dB with the project. Both with project and without project DNL levels exceed the City's 60 dB DNL standard for exterior noise exposure in outdoor activity areas. With regard to project-related changes in noise exposure, a decrease of 0.9 dB DNL would occur as a result of the project. This is the result of traffic along Jaye Street being a greater distance away from the receiver under with project conditions.

At Receivers, 1, 2, and 3, the existing ambient level is below the City's standards. The predicted traffic noise levels for the future (2030) with project conditions will not exceed the City's standards in 2030. The existing ambient noise exceeds the City's noise standard at Receiver 4 and 5; therefore, the applicable standard for determining a potential impact is whether the project results in an increase of the ambient noise level. The predicted traffic noise levels at Receivers 4 and 5 for the future (2030) with project conditions will result in a decrease of -1 dB above the predicted future (2030 no project conditions. Accordingly, impacts would be less than significant. No mitigation is required.

Table 3.12-5
Analysis of Barrier B-1 at Villa Robles Apartments

	Position Multi-Family Units		Total Number of Benefited Receivers
	Receiver 4 (Downstairs)	**Receiver 5 (Upstairs)**	
Number of Units Represented	7	7	14
Existing Traffic Noise Level (dBA Leq[h])	**66**	**67**	
Future (2030) Project Traffic Noise Level (dBA leq[h])	**67**	**67**	
Future (2030) with Project minus Existing Traffic Noise Level (dBA Leq[h])	1	0	
6-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	61	**67**	
Predicted Noise Reduction	6	0	
Number of Benefited Receivers	0	0	0
7-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	60	**67**	
Predicted Noise Reduction	7	0	
Number of Benefited Receivers	7	0	7
8-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	59	**67**	
Predicted Noise Reduction	8	0	
Number of Benefited Receivers	7	0	7
9-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	57	**67**	
Predicted Noise Reduction	10	0	
Number of Benefited Receivers	7	0	7
10-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	56	**67**	
Predicted Noise Reduction	11	0	
Number of Benefited Receivers	7	0	7
11-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	56	**66**	
Predicted Noise Reduction	11	1	
Number of Benefited Receivers	7	0	7
12-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	55	65	
Predicted Noise Reduction	12	2	
Number of Benefited Receivers	7	0	7
13-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	55	65	
Predicted Noise Reduction	12	20	
Number of Benefited Receivers	7	0	7
14-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA Leq[h])	54	63	
Predicted Noise Reduction	13	4	
Number of Benefited Receivers	7	0	7

Note: Traffic Noise Levels that approach or exceed the NAC are shown in bold.
Source: Brown-Buntin Associates, Inc., 2012

Conclusion: The project would result in a less than significant impact with regards to the City of Porterville's noise standards; therefore, no mitigation is required. With respect to FHWA and Caltrans noise standards, the project has a potentially significant impact. Accordingly, mitigation in the form of noise abatement must be incorporated into the project.

Mitigation Measure #3.12.1: Noise abatement shall be incorporated into the final project design in accordance with 23 CFR 772; Caltrans acoustic design goal, and the Highway Design Manual, Chapter 1100.

Effectiveness of Measures: With the implementation of Mitigation Measure #3.12.1, noise impacts would be reduced to a level of ***less than significant with mitigation incorporated*.**

Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (b):

Vibration from construction activities could be detected at the closest sensitive land uses, especially during pile driving activities and movements by heavy equipment or loaded trucks. Typical vibration levels at a reference distance of 25 feet are summarized by Table 3.12-6. For comparison purposes, reference vibration levels have been projected for a distance of 100 feet to more closely represent the closest critical receivers, especially with reference to pile driving vibration.

Table 3.12-6
Jaye Street Bridge – Estimated Vibration Levels During Construction

Equipment	PPV (in/sec)		RMS Velocity (VdB)	
	@ 25 feet	@ 100 feet	@ 25 feet	@ 100 feet
Pile Driver (Impact)	0.6 – 1.5	0.08 – 0.19	104-112	86-94
Pile Driver (Sonic)	0.2 – 0.7	0.025 – 0.088	93-105	70-82
Bulldozer (Large)	0.09	0.011	87	69
Bulldozer (Small)	0.003	0.0004	58	40
Loaded Truck	0.08	0.01	86	68
Jackhammer	0.04	0.005	79	61

Source: Transit Noise and Vibration Assessment, FTA-VA-90-103006, May 2006

As noted previously, vibration levels resulting from temporary construction, including vehicles entering or leaving a construction site, are exempt from the city's vibration standards as set forth in Section 307.06 of the Development Ordinance. Nevertheless, vibration levels would be below normal thresholds of annoyance for all activities except pile driving. Vibration from pile driving would be perceptible at the closest sensitive receivers, but would be below the 0.2 PPV and 100 VdB thresholds typically applied to prevent structural damage in normal buildings. Accordingly, impacts will be less than significant.

Conclusion: The project would not expose persons to or generation of excessive groundborne vibrations or groundborne noise levels. Impacts will be ***less than significant***.

Mitigation Measure: None is required.

Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (c):

The project's potential to substantially increase ambient noise levels at nearby properties is defined by using the term "substantial." The term "substantial" is not defined in the CEQA guidelines. However, research into the human perception of increased sound level indicates the following:

- A 1-dBA, or less, increase is difficult to perceive;
- A 3-dBA increase is just perceptible;
- A 5-dBA increase is clearly perceptible; and
- A 10-dBA increase is perceived a being twice as loud.

Therefore, under typical outdoor ambient conditions, where constantly varying noise levels are occurring over time, people typically cannot clearly perceive increases in ambient noise levels until they reach approximately +3 dBA. As such, 3 dBA is generally accepted as the threshold beyond which increases to local ambient noise levels resulting from projects are considered "substantial."

In light of the sound level perception thresholds and noise standards described above, potentially significant increase in ambient noise levels would occur if noise generated by the project would increase outdoor noise levels by 3 dBA or more and if outdoor noise levels at that location would exceed the City's noise standards. As discussed under impact (a) above, the existing ambient noise level at Receivers 4 and 5 exceeds the City's noise standards; therefore the applicable noise standard is the existing ambient noise level.

As shown in Table 3.12-4, at the potential receiver locations, the project either results in a decrease of -1 dBA or +2 dBA, neither of which would be considered a substantial permanent increase in ambient noise levels. The project would not exceed the City's noise standard at Receiver locations 1, 2, and 3. At Receiver locations 4 and 5, the project would result in 1 dB above the existing ambient noise level, however the project would result in a decrease of -1 dB from the 2030 No Project conditions, therefore the project results in an improvement in noise levels. Accordingly, the project does not meet the criteria of a +3 dBA increase and an exceedance of the City's noise standards.

Conclusion: The project would not result in a substantial permanent increase in ambient noise levels. Impacts will be ***less than significant***.

Mitigation Measures: No mitigation is necessary.

Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (d):

During construction of the project, noise from construction activities could potentially impact sensitive uses in the immediate area. Activities associated with construction would generate noise

levels at 50 feet as indicated by Table 3.12-7. Since the closest critical receivers are located farther from the bridge construction area than 50 feet, noise exposure would be less than indicated by Table 3.12-7.

The City of Porterville Municipal Code 18-90.6 exempts construction noise sources associated with construction, whether private or public, within 500 feet of residential uses provided such activities do not take place before 6:00 A.M. or after 9:00 P.M. on any day except Saturday or Sunday, or before 7:00 A.M. or after 5:00 P.M. on Saturday or Sunday. The required construction schedule necessary to qualify for an exemption has been included as a mitigation measure.

Table 3.12-7
Typical Construction Equipment Noise Levels

Type of Equipment	Maximum Level, dBA (50 feet)
Backhoe	78
Concrete Saw	90
Crane	81
Excavator	81
Front End Loader	79
Jackhammer	89
Paver	77
Pneumatic Tools	85
Bulldozer	82

Source: FHWA

Conclusion: Construction activities would temporarily increase the ambient noise levels in the project vicinity. This is a potentially significant impact.

Mitigation Measure #3.12.2: Construction activities shall be limited to between 6:00 A.M. and 9 P.M. Monday through Friday and between 7:00 A.M. and 5:00 PM on Saturday or Sunday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on holidays (President's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Day after Thanksgiving, Christmas Day, and New Year's Day).

Mitigation Measure #3.12.3: The construction contract shall require the construction contractor to ensure that construction equipment noise is minimized by muffling and shielding intakes and exhaust on construction equipment (in accordance with the manufacturer's specifications) and by shrouding or shielding impact tools.

Effectiveness of Measure: With the implementation of Mitigation Measures 3.12-2 and 3.12-3 temporary noise increases would be ***less than significant with mitigation incorporated***.

Airport Noise (e): The project site is not located within two miles of a public or public use airport. The Porterville Municipal airport is located 2.5 miles southwest of the project site. According to the City of Porterville General Plan Update Chapter 9-Noise, the project site is located outside the 55-dB CNEL noise contour for the Porterville Municipal Airport; as such, impacts would be less than significant.

Conclusion: Impacts would be ***less than significant***.

Mitigation Measures: None are required.

Airport Noise (f): The proposed project is not located within two miles of a private airstrip. No impacts would occur.

Conclusion: There is ***no impact***.

Mitigation Measures: None are required.

3.13 Population and Housing

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Response:

Population Growth and Displacement (a, b, c): Replacement or reconstruction of the bridge and associated roadway improvements are in response to the City's determination that the bridge and roadway improvements are necessary to relieve congestion. Local workers would be utilized for the construction of the proposed project and would not require additional permanent housing. Therefore, no additional housing would be required as a result of the project. As a result, the project would not induce substantial population growth. Construction of the project would not displace existing housing or people necessitating the construction of replacement housing elsewhere.

Conclusion: There would be ***no impact*** to population or housing.

Mitigation Measures: None are required.

3.14 Public Services

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 impact, in order to maintain acceptable service ratios for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Response:

Fire Protection Services (a): The City of Porterville Fire Department provides fire and life safety services for residents located within the City limits. The proposed project would result in the demolition and reconstruction or replacement of a bridge and would be constructed in accordance local and state fire codes. Any calls for service during construction would cause only temporary effects to fire services, and impacts would not result in a notable increase in fire risk and service demand for the area. Construction and staging activities associated with the proposed project could have the potential to interfere with emergency response plans by obstructing response and evacuation routes on existing roads. However, the proposed project will require construction contract special provisions requiring that a traffic management plan be prepared. The traffic management plan will include construction staging and traffic control measures to be implemented during construction to maintain and minimize impacts to traffic. Minor traffic stoppages or delays may be allowed if necessary during project construction. Full roadway closures will be avoided during project construction and provisions for emergency vehicle movement through the project area will be provided at all times during construction. Furthermore, the City or its construction contractors will conduct early coordination with utility service providers, law enforcement, and emergency service providers to ensure minimal disruption to service during construction. As a result of this coordination, emergency service provides would be aware of project construction and the potential for any emergency vehicle movement delays with the project area and measures to avoid such delays would be determined. The proposed project's construction would not affect the provision of

emergency services or evacuation of the project area in the event of a major emergency. One of the primary objectives of the proposed project is to improve the flow of traffic through the existing community, which would in turn improve emergency vehicle access. Since the proposed project would not include the construction of residential or commercial land uses, the construction of new or physically altered fire protection facilities would not be required. The proposed project would improve circulation in the Jaye Street/Springville and Date Avenue area thereby reducing delay times that the Fire Department may encounter.

Conclusion: The project would not create a significant demand for additional fire services. Impacts would be ***less than significant***

Mitigation Measures: None are required.

Police Protection (a): The City of Porterville Police Department provides law enforcement within the jurisdictional boundaries of the City of Porterville, including the project site. Construction of the proposed project could create significant interference with emergency plans by obstructing response and evacuation routes on existing roads. However, construction contract special provisions will require that a traffic management plan be prepared. The traffic management plan will include construction staging and traffic control measures to be implemented during construction to maintain and minimize impacts to traffic. Minor traffic stoppages or delays may be allowed if necessary during project construction. Full roadway closures will be avoided during project construction and provisions for emergency vehicle movement through the project area will be provided at all times during construction. Furthermore, the City or its construction contractors will conduct early coordination with utility service providers, law enforcement, and emergency service providers to ensure minimal disruption to service during construction. As a result of this coordination, law enforcement service providers would be aware of project construction and the potential for any emergency vehicle movement delays within the project area and measures to avoid such delays would be determined. The proposed project's construction and use would not affect the provision of police services or area evacuation in the event of a major emergency. Since the proposed project would not include the construction of residential or commercial land uses, the construction of new or physically altered police protection facilities would not be required. It is not anticipated that construction of the proposed project, which is designed to improve congestion in the project vicinity would have a negative impact or would impede the continued protection and service to residents by the Police Department.

Conclusion: The project would not create a significant demand for additional police protection services. Impacts would be ***less than significant***.

Mitigation Measures: None are required.

School Facilities: The proposed project is located within the Porterville Unified School District (for grades K through 12). Construction of the proposed project could interfere with existing school bus travel by creating temporary route delays that reduce the flow of vehicular traffic at certain times of the day. Delays would occur only during the construction phase and

implementation of the traffic management plan would ensure that a through-route is provided at all times. Since the construction period and resulting delays would be temporary, impacts would be less than significant. The direct increase in demand for schools is normally associated with new residential projects that bring new families with school-aged children to a region. The proposed project does not contain any residential uses. The project, therefore, would not result in an influx of new students in the project area and is not expected to result in an increased demand upon District resources and would not require the construction of new facilities.

Conclusion: The project would result in a ***less than significant impact*** to school facilities.

Mitigation Measures: None are required.

Park Facilities (a): The project would not result in an increase in demand for parks and recreation facilities because it would not result in an increase in population. Accordingly, the proposed project would have no impacts on parks.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

Other Public Facilities (a): The proposed project does not propose residential, commercial, or industrial development. The project, therefore, would not result in increased demand for, or impacts on, other public facilities such as library services. Accordingly, no impact would occur.

Conclusion: There would be ***no impact***.

Mitigation Measures: None are required.

3.15 Recreation

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Response:

Recreational Facilities (a, b): The proposed project does not include the construction of residential uses and would not directly induce population growth. Therefore, the project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities.

Conclusion: ***No impacts*** would occur.

Mitigation Measures: None are required.

3.16 *Transportation/Traffic*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☒
e) Result in inadequate emergency access?)	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted polices, plans, or programs supporting alternative transportation?	☐	☐	☐	☒

Response:

Increase in Traffic (a, b): The proposed project consists of rehabilitating the existing bridge to widen from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The area of potential effect includes approximately 600 feet-plus on the north (to Date Avenue) and 350 feet-plus on the south approach (to Springville Avenue). The approaches are proposed to be re-aligned and restriped from two-lanes to four-lanes to tie into

the existing four-lane roads that currently exist at the Date Avenue intersection to the north and south of the bridge north of Springville Avenue. Potential improvements to the approaches would include realignment, overlay, restriping, and shoulder work within the existing right-of-way. The improvements would eliminate the existing "bottleneck" conditions in the vicinity of the bridge.

The proposed project would not increase traffic above levels anticipated in the General Plan (see Appendix F, Traffic Memorandum). The General Plan estimated that the Level of Service for the segment of roadway covered by the bridge would continue to be at level B with implementation of project improvements.

Conclusion: ***Less than significant impact***.

Mitigation Measures: None are required.

Air Traffic Patterns (c): The project site is not located in close proximity to an airport, the nearest airport is the Porterville Municipal Airport located 2.5 miles southwest of the project site. The proposed project will not change or effect any air traffic patterns or airport land use plan.

Conclusion: There are ***no impacts***.

Mitigation Measures: None are required.

Hazards, Emergency Access and Parking (d, e, f): Construction and staging activities associated with the proposed project could have the potential to interfere with emergency response plans by obstructing response and evacuation routes on existing roads. However, the proposed project will require construction contract special provisions requiring that a traffic management plan be prepared. The traffic management plan will include construction staging and traffic control measures to be implemented during construction to maintain and minimize impacts to traffic. Minor traffic stoppages or delays may be allowed if necessary during project construction. Full roadway closures will be avoided during project construction and provisions for emergency vehicle movement through the project area will be provided at all times during construction. Furthermore, the City or its construction contractors will conduct early coordination with utility service providers, law enforcement, and emergency service providers to ensure minimal disruption to service during construction. As a result of this coordination, emergency service providers would be away of project construction and the potential for any emergency vehicle movement delays with the project area and measures to avoid such delays would be determined. The proposed project's construction would not affect the provision of emergency services or evacuation of the project area in the event of major emergency.

Conclusion: Impacts are ***less than significant***.

Mitigation Measures: None are required.

Alternative Transportation (g): No new facilities are proposed that would increase hazards or create barriers for pedestrians or bicyclists. Because the project would not affect pedestrian

or bicycle facilities, or the potential hazards of using such facilities, there would be no impacts associated with pedestrian and bicycle hazards.

Conclusion: There will be ***no impact*** to alternative transportation.

Mitigation Measures: None are required.

3.17 *Utilities/Service Systems*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Response:

Wastewater (a, b, e): During construction, portable restroom facilities would be provided by the construction contractor for the construction workers. Wastewater would be contained within portable toilet facilities and disposed of at an approved site according to regulations. The applicant would contract with a local service provider to dispose of the wastewater at an approved wastewater treatment plant. No other sources of wastewater are anticipated during the proposed project construction activities, and operation of the proposed project would not require the use of water or the generation of wastewater. The negligible amount of wastewater generated during construction would not affect the wastewater treatment facility's ability to meet their applicable wastewater treatment requirements. The proposed project would not require the construction of new water or wastewater treatment facilities. Water would be required for dust control purposes, but would be acquired from persons with existing entitlements to water, and no new entitlements will be required. All applicable local, state, and federal requirements and best management practices would be incorporated into construction of the project.

Conclusion: There would be ***no impacts***.

Mitigation Measures: None are required.

Conclusion: The Project's stormwater impact is ***less than significant***.

Storm Water (c): The project will not require construction of new stormwater facilities. Construction will not require the use of significant amounts of water that would result in an increase in runoff or result in flooding. Additionally, the contractor(s) will perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. Compliance with regulatory measures would ensure that stormwater impacts are less than significant.

Mitigation Measures: None are required.

Water Service (d): The project would require minimal amounts of water for dust control purposes during construction. During construction, all non-potable water required would be supplied by truck from existing entitlements. No new resources or entitlements will be needed.

Conclusion: The project would have a ***less than significant impact*** on the City's ability to serve existing water users.

Mitigation Measures: None are required.

Solid Waste (f, g): The project would include some demolition of the current bridge structure. These activities are expected to generate construction debris including concrete, metal, and asphalt. Solid waste materials will be transported to the permitted landfill in Tulare County. In compliance with state, federal, and local regulations, materials will be recycled to the extent possible.

Conclusion: The proposed project would not generate the need for new solid waste facilities and the impacts would be ***less than significant***.

Mitigation Measures: None are required.

3.18 *Mandatory Findings of Significance*

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have the potential to: 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; substantially 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?	☐	☒	☐	☐
b) Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☒	☐
c) Have possible environmental effects that are individually limited but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects.	☐	☐	☒	☐
d) Include environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Response:

Environmental/Habitat/Species Degradation (a): The proposed project has the potential to significantly impact several species during the construction phase. Risk of significant impact can be reduced to less than significant by implementing measures as outlined under Section

3.4, so that no long-term affects to any species will occur. The proposed project is consistent with long-range plans for the City's transportation system and would not be inconsistent with existing environmental plans.

Conclusion: The project may have a ***potentially significant impact***.

Mitigation Measures: See Mitigation Measures in Section 3.4.

Effectiveness of Measures: Implementation of Mitigation Measures in Section 3.4 will reduce the impacts to ***less than significant***.

Short-term/Long-term Goals (b): The project is in response to priorities for transportation related projects, as outlined by Federal Transportation Improvement Program. There will be no impacts to long term environmental goals.

Conclusion: The project would have a ***less than significant impact***.

Mitigation Measures: None are required.

Cumulatively Considerable (c): CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc).

Conclusion: The project would have a ***less than significant impact***.

Mitigation Measures: None are required.

Effect on Human Beings (d): The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the project design to reduce all potentially significant impacts to less than significant.

Conclusion: The project would have a ***less than significant impact***.

Mitigation Measures: None are required.

SECTION FOUR

MITIGATION REPORTING/MONITORING PLAN

SECTION FOUR – MITIGATION MONITORING PLAN

State and local agencies are required by Section 21081.6 of the California Public Resources Code to establish a monitoring and reporting program for all projects which are approved and which require CEQA processing.

Local agencies are given broad latitude in developing programs to meet the requirements of Public Resources Code Section 21081.6. The mitigation monitoring program outlined in this document is based upon guidance issued by the Governor's Office of Planning and Research.

The mitigation monitoring and reporting program for the proposed project corresponds to mitigation measures outlined in the project Mitigated Negative Declaration (MND). The Program summarizes the environmental issues identified in the MND, the mitigation measures required to reduce each potentially significant impact and the agency or agencies responsible for monitoring and reporting on the implementation of the mitigation measures.

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
3.4 Biological Resources				
3.4-1	To avoid impacts to VELB, the following measures shall be implemented: • Prior to the initiation of ground disturbance, a four foot tall, high visibility, temporary exclusionary fence will be installed at the maximum distance feasible for construction occurring within the 100 foot buffer of the elderberry shrubs remaining within the work area. • If any elderberry shrubs will be encroached upon within 100 feet, an exclusion fence will be placed no closer than 20 feet from the drip line of the elderberry shrub. • Any elderberry shrubs that will be encroached upon within 20 feet will be considered to be impacted. • No work will be conducted within the established exclusion zones. In addition, all vehicle operations will be minimized around these shrubs. • All equipment will be staged away from the elderberry shrubs, in previously disturbed areas.	City of Porterville	USFWS/CDFG	Less than Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	• Signs that designate the buffer areas as VELB habitat, and that describe the federal protection status of the species, should be erected every 50 feet along the edge of the avoidance areas. • A qualified biologist, skilled in the identification and habitat needs of the VELB, shall be present to monitor compliance with avoidance of all elderberry shrubs not transplanted or trimmed. The biological monitor shall be present anytime work is conducted in the vicinity of the elderberry shrubs, including trimming and transplanting. If, at any time, elderberry shrub impact avoidance measures are not followed, the biologist shall be given the power to suspend construction operations until such activities are corrected and an alternate course of action is taken that ensures no impacts to the elderberry shrubs will occur. • Within 30 days after the completion of the project, a compliance report letter that documents the results of the implementation of mitigation measures will be completed and submitted to USFWS. • Prior to the initiation of ground disturbing activities, a qualified biologist will conduct threatened and endangered species training. Personnel that will be working in the project site			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	will be trained in the life history, habitat requirements, protection status, impact avoidance measures, and penalties under the federal endangered species act for unauthorized take of the VELB. A written handout will be provided to construction personnel that will include the above-mentioned information, illustrations and photographs of pertinent aspects of VELB life history. All personnel conducting work in the project site will be required to attend the training prior to working on site. A signup sheet will be maintained that provides written verification of all training meeting attendees. • All vehicles and equipment entering the project site shall be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of off the project site. All construction materials will be staged away from all elderberry shrubs and any spills will be cleaned immediately. No herbicides, fertilizers or other chemicals that may harm the elderberry shrubs shall be used within 100 feet of the shrubs.			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	• Construction will permanently alter the portions of the 100-foot buffer zones within the work area surrounding the project. Following construction, areas within the buffer zones will be restored to the extent feasible. • Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes. These ten elderberry shrubs should be transplanted to a suitable conservation area. In addition, standard compensation plantings (sensu USFWS 1999) require that 153 elderberry seedlings/cuttings and 273 container stocks of associated native plants be planted in a conservation area. The associated native plants should include both overstory and understory species. The conservation area should provide at least 1,800 square feet for each transplanted elderberry shrub (USFWS 1999). As many as five elderberry shrubs and five associated native plants may be planted within the 1,800 square foot area. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Therefore, the conservation area should cumulatively encompass a minimum of 90,720			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	feet (2.08 acres). The conservation area and plantings will continue to be monitored by means of two site visits by a qualified biologist between February 14th and June 30th of each of the 10 years succeeding the emplacement of the additional cuttings, seedlings and transplanted elderberry shrubs. Surveys will include a population census of any beetles or exit holes observed, an evaluation of conservation plantings, and a general assessment of the habitat, adequacy of protection measures, etc., as specified in the USFWS VELB conservation guidelines (1999). A report detailing the results of these surveys should be submitted by December 31st of each year of monitoring to the USFWS and the California Department of Fish and Game, and monitoring should continue to occur on this schedule. Successful conservation will be assumed if 60 percent of the elderberry plants and 60 percent of the associated native plants survive. If survival drops below 60 percent, the City must replace failed plantings within one year to bring survival above this level. Alternatively, the City may purchase credits in an established mitigation bank to compensate for the loss of elderberry shrubs.			
3.4.2	To avoid impacts to Swainson's hawk, the following	City of Porterville	CDFG	Less than

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	measures shall be implemented: • A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG; • All trees which are suitable for Swainson's hawk nesting that are within 2,640 feet of construction activities shall be inspected for nests by a qualified biologist; • If potential Swainson's hawk nests are located, surveys to determine whether Swainson's hawks use those nests will be determined by conducting surveys at the following intensities, depending upon dates of initiation of construction:			Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation

Construction start	Survey period	Number of surveys	Timing
1 January to 20 March	1 January to 20 March	1	All day
21 March to 24 March	1 January to 20 March	1	All day
	21 March to 24 March	Up to 3	Sunrise to 1000 and 1600 to sunset
24 March to 5 April	1 January to 20 March	1	All day
	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
6 April to 9 April	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 9 April	Up to 3	Sunrise to 1000 and 1600 to sunset
	1 January to 20 March	1 (if all 3 surveys are performed	All day

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation

		between 6 and 9 April, then this survey need not be conducted)	
10 April to 30 July	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 20 April	3	Sunrise to 1200 and 1630 to sunset
31 July to 15 September	6 to 20 April	3	Sunrise to 1200 and 1630 to sunset
	10 to 30 July	3	Sunrise to 1200 and 1600 to sunset

A nest can be eliminated as a potential Swainson's hawk nest if another species of raptor is using the nest;

- If Swainson's hawks are detected to be nesting in

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	trees within 600 feet of the construction area, construction will not occur within this zone until after young Swainson's hawks have fledged (this usually occurs by early June). The nest will be monitored by a qualified biologist to determine fledging date. If Swainson's hawks are found within the project area, the project site would be considered foraging habitat and compensation for foraging habitat would be required by CDFG at a ratio of 0.75 to 1 (0.75 acre for every 1.0 acre adversely affected); • If other raptors are found nesting within 250 feet of the construction area, construction will be postponed until after young have fledged. The date of fledging will be determined by a qualified biologist. If construction cannot be delayed within this zone, the CDFG will be consulted and alternative protection measures required by the CDFG will be followed; and • The removal of trees shall not occur during the breeding season (February 1st to September 15th). Trees slated for removal during the breeding season shall be surveyed by a qualified biologist prior to removal to ensure that there are no nesting birds occupying the tree.			
3.4.3	To avoid impacts to migratory birds, the following	City of Porterville	CDFG	Less than

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	measures shall be implemented: • A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG. The CDFG may need to be contacted to determine the appropriate buffer and a biologist may need to monitor the nesting activity to ensure proper avoidance measures have been implemented; • Any trees scheduled for removal during the nesting season from February 15th to September 1st must first be inspected by a qualified biologist prior to removal. Active nest trees cannot be removed until nesting has been completed or removal has been deemed permissible by a			Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	biologist. • It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows; • If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows; • Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated; • Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be used; • Weekly scalping, between February 15 and			

<table>
<tr><th>Impact Number</th><th>Mitigation Measure</th><th>Implementing Agency</th><th>Monitoring Agency</th><th>Level of Significance After Mitigation</th></tr>
<tr><td></td><td>September 1, of partially completed nests is permitted to discourage nesting; and

• If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.</td><td></td><td></td><td></td></tr>
<tr><td>3.4.4</td><td>To avoid impacts to American badger, the following measures shall be implemented:

• Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the American badger. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

<table><tr><td>Potential Den</td><td>50 foot radius</td></tr><tr><td>Known Den</td><td>100 foot radius</td></tr><tr><td>Natal/Pupping Den (Occupied and Unoccupied)</td><td>Contact U.S. Fish and Wildlife Service for guidance</td></tr><tr><td>Atypical Den</td><td>50 foot radius</td></tr></table>
• Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways.</td><td>City of Porterville</td><td>USFWS/CDFG</td><td>Less than Significant</td></tr>
</table>

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude American badger. The area within any such fence must be determined to be uninhabited by American badger prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited; • To prevent inadvertent entrapment of badgers or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured badger is discovered, the procedures in this section must be followed; • Badgers are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	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 once to remove it from the path of construction activity, until the badger has escaped; • All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site; • No firearms shall be allowed on the project site; • To prevent harassment, mortality of badgers or destruction of dens by dogs or cats, no pets shall be permitted on the project site; • 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 badger, or who finds a dead, injured or entrapped individual. The representative's name and telephone number shall be provided to the USFWS and CDFG; • In the case of trapped animals, escape ramps or			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice; • Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures an American badger shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist; and • The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to an American badger 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.			
3.4.5	To avoid impacts to bats, the following measures shall be implemented:	City of Porterville	CDFG	Less than Significant

<table>
<tr><th>Impact Number</th><th>Mitigation Measure</th><th>Implementing Agency</th><th>Monitoring Agency</th><th>Level of Significance After Mitigation</th></tr>
<tr><td></td><td>• Pre-construction surveys for bats of the bridge by a qualified biologist are required prior to bridge removal to ensure that bats have not moved into the bridge; and

• If bats are found to occupy the bridge during pre-construction surveys, a bat eviction and mitigation plan has to be prepared in consultation the CDFG. In this event the existing bridge cannot be removed until all bats have been successfully evicted and adequate mitigation measures, such as bat houses or a bat friendly bridge design, have been approved by the CDFG.</td><td></td><td></td><td></td></tr>
<tr><td>3.4.6</td><td>To avoid impacts to San Joaquin kit fox, the following measures shall be implemented:

Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

<table>
<tr><td>Potential Den</td><td>50 foot radius</td></tr>
<tr><td>Known Den</td><td>100 foot radius</td></tr>
<tr><td>Natal/Pupping Den (Occupied and</td><td>Contact U.S. Fish and Wildlife Service</td></tr>
</table></td><td>City of Porterville</td><td>USFWS/CDFG</td><td>Less than Significant</td></tr>
</table>

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	<table><tr><td>Unoccupied)</td><td>for guidance</td></tr><tr><td>Atypical Den</td><td>50 foot radius</td></tr></table> • Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit fox. The area within any such fence must be determined to be uninhabited by San Joaquin kit fox prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited; • To prevent inadvertent entrapment of kit foxes or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such 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 procedures in this section must be followed; • San Joaquin kit fox are attracted to den-like			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped; • All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site; • No firearms shall be allowed on the project site; • To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on the project site; • A representative shall be appointed by the project proponent who will be the contact source for any			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	employee or contractor who might inadvertently kill or injure a kit fox, or who finds a dead, injured or entrapped individual. The representative's name and telephone number shall be provided to the USFWS and CDFG; • In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice; • Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist; and • The Sacramento Fish and Wildlife Office and CDFG will 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			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.			
3.4.7	The following measures shall be implemented to protect GVMRF: • Impacts to GVMRF and to other trees and shrubs will be avoided by installing Environmentally Sensitive Area (ESA) fencing around all riparian vegetation that can be avoided; • A biological monitor will oversee installation of the ESA fencing and will ensure maintenance of the ESA fencing during construction on a weekly basis; • Pre-construction training of all on-site workers. All on-site contractors and construction workers, including supervisors and inspectors shall attend a worker training and awareness program. At a minimum, the training program shall include discussions regarding the importance and status of the GVMRF and the ESA fencing. The construction workers shall be made aware of their roles and responsibilities in implementing the	City of Porterville	CDFG	Less than Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	project protection measures and other requirements. Construction activities shall be monitored on a weekly basis by a qualified biological monitor to ensure that all construction fencing and exclusionary fencing is appropriately maintained and that all other measures are fully and faithfully implemented. The biological monitor and the construction team shall work cooperatively to ensure that all measures are effective. The biological monitor shall be on-call to assist with any issues which may arise (such as the "take" of a sensitive species). The biological monitor shall discuss any infractions of the measures with the construction contractor, remedial actions shall be implemented when needed, and solutions shall be devised to prohibit subsequent infractions. A monthly progress report shall be prepared by the biological monitor, which shall be submitted to the CDFG. That report shall include dates of construction, types of construction activities occurring, descriptions of the measures that were implemented, infractions that occurred, and descriptions of any remedial actions that were taken. A final report shall be submitted once all construction has been completed and site restoration has been completed;			

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	• Permanent and temporary impacts to GVMRF will be mitigated by implementing a GVMRF Revegetation and Restoration Plan which will be developed in consultation with the CDFG; and • Compensatory Mitigation for impacts to GVMRF may also be required and will be determined during consultation with the CDFG.			
3.4.8	The applicant will be required to obtain the following permits: Section 404 permit from the ACOE, Section 401 permit from the Regional Water Quality Control Board (RWQCB), and a Section 1602 Streambed Alteration Agreement from CDFG. Impact acreage amounts will be determined when contract drawings are complete and can provide an accurate estimate as to the extent of proposed impacts to WOUS in result of project construction. If impacts to WOUS exceed 0.5 acres then an application for a Section 404 Individual Permit would be required prior to project approval.	City of Porterville	RWQCB/CDFG	Less than Significant
3.5 Cultural Resources				
3.5.1	Although there is no recorded evidence of historic or	City of Porterville	City of Porterville	Less than

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	archaeological sites on the project site, there is the potential during project-related excavation and construction for the discovery of cultural resources. The City of Porterville shall incorporate into the construction contract(s) for the project a provision that includes the following measures: • Before initiation of construction or ground-disturbing activities associated with the project, the project proponent for all project phases shall require all construction personnel to be alerted to the possibility of buried cultural resources, including historic, archeological and paleontological resources; • The general contractor and its supervisory staff shall be responsible for monitoring the construction project for disturbance of cultural resources; and • If a potentially significant historical, archaeological, or paleontological resource, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains or trash deposits are encountered during subsurface construction activities (i.e., trenching, grading), all construction activities within a 100-foot radius of the identified potential resource shall cease until a qualified archaeologist			Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	evaluates the item for its significance and records the item on the appropriate State Department of Parks and Recreation (DPR) forms. The archaeologist shall determine whether the item requires further study. If, after the qualified archaeologist conducts appropriate technical analyses, the item is determined to be significant under California Environmental Quality Act, the archaeologist shall recommend feasible mitigation measures, which may include avoidance, preservation in place or other appropriate measure, as outlined in Public Resources Code section 21083.2. The City of Porterville shall implement said measures.			
3.5.2	The City of Porterville will incorporate into the construction contract(s) a provision that in the event a fossil or fossil formations are discovered during any subsurface construction activities for the proposed project (i.e., trenching, grading), all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at the City of Porterville, who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, the City shall implement those measures, which may include avoidance,	City of Porterville	City of Porterville	Less than Significant

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	preservation in place, or other appropriate measures, as outlined in Public Resources Code section 21083.2.			
3.8 Hazards/Hazardous Materials				
3.8.1	Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	City of Porterville	City of Porterville	Less than Significant
3.8.2	Construction contractors shall ensure that during construction, staging areas, building areas, and/or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak.	City of Porterville	City of Porterville	Less than Significant
3.9 Hydrology/Water Quality				
3.9.1	If construction or demolition is necessary during a time when the River is flowing, a small cofferdam would be constructed to divert the water.	City of Porterville	City of Porterville	Less than Significant
3.12 Noise				
3.12.1	Noise abatement shall be incorporated into the final	City of Porterville	Caltrans	Less Than

Impact Number	Mitigation Measure	Implementing Agency	Monitoring Agency	Level of Significance After Mitigation
	project design in accordance with 23 CFR 772; Caltrans acoustic design goal, and the Highway Design Manual, Chapter 1100.			Significant
3.12.2	Construction activities shall be limited to between 6:00 A.M. and 9 P.M. Monday through Friday and between 7:00 A.M. and 5:00 PM on Saturday or Sunday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on holidays (President's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Day after Thanksgiving, Christmas Day, and New Year's Day).	City of Porterville	City of Porterville	Less than Significant
3.12.3	The construction contract shall require the construction contractor to ensure that construction equipment noise is minimized by muffling and shielding intakes and exhaust on construction equipment (in accordance with the manufacturer's specifications) and by shrouding or shielding impact tools.	City of Porterville	City of Porterville	Less than Significant

Notes: USFWS = U.S. Fish and Wildlife Service, CDFG = California Department of Fish and Game, ACOE = U.S. Army Corps of Engineers, RWQCB = California Regional Water Quality Control Board, Caltrans = California Department of Transportation

SECTION FIVE

PERSONS AND SOURCES CONSULTED

SECTION FIVE – PERSONS AND SOURCES CONSULTED

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SECTION SIX

LIST OF PREPARERS

SECTION SIX – LIST OF PREPARERS

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Vanessa Williams, Project Administrator

APPENDICES

Appendix A

Bridge Rehabilitation Study

BRIDGE REHABILITATION STUDY

JAYE STREET BRIDGE
AT TULE RIVER

Bridge No. 46C0099

Date: 11/19/2008

Submitted by: TRC Engineers
Mark A. Imbriani, P.E.
Project Manager

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E. Bridge Alternative General Plans and Type Selection Memo

F. Bridge Alternative Cost Estimates

G. Life Cycle Cost Analysis

1. INTRODUCTION

The Jaye Street Bridge crosses the Tule River in the City of Porterville as shown on the location map (see Plate 1). The City of Porterville is proposing to widen Jaye Street to accommodate increased traffic as a result of adjoining development. The ultimate configuration of Jaye Street will accommodate 4 lanes of thru traffic, a shared left turn lane and sidewalks on both sides of the structure. The project will alleviate congestion and improve the level of service, reducing commute times for motorists. Thus to meet the goals of the widening, TRC Engineers will examine the existing structure for rehabilitation and widening. If rehabilitation is not feasible, a replacement alternative will be considered. Use of the existing structure will require it to be evaluated for current seismic requirements.

The existing structure was built in 1970, has two traffic lanes and is an eight-span reinforced concrete slab type bridge 241'-6" in length. The piers consist of five 1'-6" diameter concrete pile extensions attached by a concrete collar to steel H-piles with 45 ton service design load. The abutments are diaphragm type supported on steel H-piles with 45 ton service design load.

The bridge has been inspected by the Caltrans Area Bridge Maintenance Engineer, who has determined the bridge to be structurally deficient due to deck cracking. The maintenance reports also identify streambed degradation or scour at some Piers up to 5'-0" in depth from 1970 to 2003. A summary of the maintenance reports is included with this rehabilitation and widening study as Appendix D. The flows in the river are controlled by Lake Success Dam located approximately 7.5 miles upstream (east) of the bridge site. Lake Success Dam was built by the US Army Corps of Engineers (COE) in 1961 prior to the bridge under study and serves both as a flood control and irrigation control structure.

The bridge is eligible for rehabilitation under the Federal Highway Bridge Program (HBP). The City of Porterville has chosen to undertake this study to ascertain the best solution for bringing the bridge up to current seismic, hydraulic, and structural design standards. As required by HBP operating procedures, cost comparisons will be prepared to ascertain whether rehabilitation or replacement is the more cost effective course of action.

The TRC team is preparing environmental clearance documents for the project. Studies include biology, wetlands, archeological, and, potentially 4(f) clearance.

Two rehabilitation and two replacement alternatives have been examined herein, and costs estimated, to determine the proper course of action based on economic and technical issues. The alternatives include the following and are shown in the Advance Planning Study (APS) attachments. All the alternatives use a cast-in-place (CIP) type of construction. An APS was not prepared for Alternative 3.

Alternatives:

1A. Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge
1B. Widen existing structure both sides – Eight-span CIP reinforced concrete slab bridge
2. Replace existing structure – Three-span CIP prestressed concrete box girder
3. Replace existing structure – Seven-span CIP reinforced concrete slab bridge

It is expected that the demolition and construction activity will be monitored by the State Department of Fish and Game and U.S. Army Corps of Engineers, the principal permitting agencies for streambed alteration work. It is anticipated that construction will be permitted in the river only between April 15 and October 15 of any given year. This will necessitate some alternatives to be constructed over two seasons, currently envisioned to be 2010 and 2011.

The City's goals and objectives for this project are as follows:

- Rehabilitate or replace the bridge.
- Meet current HBP and Caltrans hydraulic design standards, including two feet of freeboard above the design flood, and provide for the passage of the 100 year flood.
- In the final configuration provide for an additional 3 lanes of traffic and pedestrian access on both sides of the structure. Upgrade the bridge barrier and provide a pedestrian railing.
- Accommodate vehicular, pedestrian, and bicycle traffic during construction.
- Maximize Federal funding participation.

In order to achieve these goals and to properly develop the project, the following preliminary engineering activities were performed in this study

- Obtain geotechnical information including seismic design parameters, and evaluate the potential for liquefaction.
- Prepare a bridge preliminary report which includes base maps and information as to the overall bridge configuration and design criteria.
- Perform a Seismic Retrofit Analysis to evaluate the extent and feasibility of work required.
- Perform a Rehabilitation Study which compares the cost-effectiveness of the replacement and rehabilitation options.

This report documents the above efforts and presents our recommended bridge alternative for design. The following sections describe each item of work as listed above.

2. SEISMIC RETROFIT ANALYSIS AND STRATEGY

A preliminary seismic retrofit strategy was prepared in which we evaluated the feasibility and cost of seismic retrofit features required to bring the existing structure up to current Caltrans seismic standards. The seismic analysis included the effects of scour per Caltrans methodology. This comprises of two seismic load cases. One case seismic with no scour and the other with the combined effects of seismic and scour where the pier scour component is taken as 50%. For the scour breakdown see Section 3 of this report.

Normally multi-span slab bridges with diaphragm abutments perform well seismically, however it was determined that the structure had low resistance to seismic loads in the longitudinal axis of the bridge. The contributing factors included as-built details showing a diaphragm stem wall with minimal reinforcement and no hairpin reinforcement at the abutment pile cut-off for pin condition. Hence, the abutment soil resistance was limited to the superstructure depth. In addition, the steel H piles offered less resistance due to the combined effect of scour and their orientation. Scour at the piers resulted in longer and more flexible piles with lower stiffness. The steel piles were oriented with the weak axis in the direction of the longitudinal axis of the bridge. The steel pile's moment of inertia along the weak axis is approximately 33% of that along the strong axis. In the present condition the columns/piles at Pier 8, which are relatively short, are not capable of withstanding the shear demands they will encounter during the maximum credible seismic event. In order to achieve more seismic resistance in the longitudinal

direction of the bridge, the full height of the diaphragm abutment needs to be used. This can be achieved by providing additional reinforcement in the abutment diaphragm. Additionally, possible scour countermeasures thru rehabilitation would assist in reducing degradation and limit the unsupported length of the Piers. The full "Preliminary Seismic Retrofit Calculations and Strategy" is included in Appendix C. The retrofit strategy includes:

- Reinforcing the Abutment Diaphragms
- Installing Isolation Casing around the pile/columns at Pier 8

3. SCOUR REPAIR AND/OR COUNTERMEASURE WORK

Any rehabilitation scenario must include channel work or structural repairs to protect the piles. As mentioned in the previous section, the scour repair will help to increase the stiffness of the piles. Historically, the bridge experiences scour. Given that the bridge is supported on columns on a pile cap foundation as opposed to pile extensions without a pile cap, the scour is within the top portion of the piles. The tops of the piles may be located above the lowest anticipated scour level provided the piles are designed for this unsupported condition. TRC performed a preliminary analysis of the piles to determine their stability under an assumed total scour depth.

Preliminary Scour Analysis

Of particular concern is the presence of scour in the sandy alluvium. Scour has plagued this structure and the as-built LOTB sheet indicates a depth of historic scour of about 10 to 12 feet. Caltrans Bridge Inspection reports indicate that the channel degradation is approximately 5 feet from 1970 to 2003. This would imply a degradation rate of 1.8" per year. Degradation has exposed the concrete pile extensions between Piers 2 and Pier 5. At two piles of Pier 4 the steel H-piles are exposed below the pile cap. Since a hydraulic study is not in this phase of the project, two cases of scour were assumed to evaluate the lateral stability of the piles in the L-Pile computer program. These were 12' and 18' of total scour. For service case, the 12' of total scour is comprised of 6' of long-term degradation and 6' of local pier scour. The deeper scour depth of 18' was selected based on the range of total scour calculated in the Location Hydraulic Study conducted by Boyle Engineering in June 1997 for the upstream "Main Street Bridge at Tule River". Of the 18' of total scour, 12' is degradation and the remaining 6' is local pier scour.

The channel bed is described as sand and gravel. Scour is within the limits of the concrete collar connecting the column to the piles. The scour code #113 used by NBIS (National Bridge Inspection System) is in condition state 5. The bridge has been deemed stable for the calculated scour conditions. If left unchecked however, scour could adversely affect the structural integrity of the bridge. The hydraulic field investigation dated September 2003 by Caltrans recommends that if the steel piles are exposed a further 2'-6", scour countermeasures should be installed. The pile/column was analyzed by TRC under assumed scour conditions and determined to be stable under direct axial load for buckling.

However TRC analyzed the structure using the L-Pile (Ensoft) program with assumed total scour of 12 feet from original ground for Pier 4. Individual steel pile head lateral deflection under service loads was calculated to be 0.28" at the top of pile. This was slightly higher than an allowable pile head deflection for service loads of 0.25". The required lateral pile tip elevations are acceptable as they are higher than the specified tip elevations. However, the as-built plans do not show the actual tip elevations. The steel pile

seismic moments were less than the yield capacity. Under a second case of 18 ft of total scour, the pile head deflection was 0.46". In any rehabilitation alternative, the total scour should be limited to 10'-0" maximum. This coincides with an unsupported pile extension of 25'-0" from Bridge Design Aids recommended for slab bridge pile extensions. Scour countermeasures will be needed to control pile head deflection and assist in pile stability under these circumstances.

Scour Countermeasures

At this stage we will consider the use of large riprap (¼ Ton) or gabions and grout bags for scour protection around Piers 2 thru 5.

The use of riprap at the site will require the revetment to be anchored up to the scour elevation so that embedment is adequate. This could require placing at least 12 feet of RSP around each pile. HEC-18 recommends that the minimum thickness of riprap placement be based on three times the size of the average stone (the D_{50} stone). A rock size selected of ¼ Ton is used in our estimate for riprap and is based on past remediation at Abutment 1 flood repair of 1997 completed by Boyle Engineering. It is suggested that scour repairs using riprap at piers be considered a temporary scour countermeasure and should be periodically inspected and monitored.

Grout bags have been used in applications of bridge pier scour to control erosion. Placement of grout bags can be completed in the wet condition. The ground is excavated and the grout mats are placed tightly up against the pier and injected with grout.

The effectiveness of scour countermeasures will depend on numerous factors which include type selected, rock size design, existing soil parameters, placement method and river flow velocities. There will be a risk associated with the placement of the scour countermeasure as the sides or even the leading edge of the riprap can be undermined during a flood event.

4. REPAIRS AND MAINTENANCE

TRC has reviewed the Caltrans Bridge Maintenance Inspection reports and a summary is included in Appendix D. A material inspection of the bridge was also conducted by Christensen Materials Engineering (CME) in March 2008. The CME report, dated April 18, 2008 was generally favorable for the conditions evaluated on the existing bridge. The concrete was sound and had an average compressive strength of 4470 psi. There was no significant corrosion or deterioration observed during the bridge inspection. The following bridge repairs are recommended in the report.

Deck Friction

The deck surface is weathered and worn over the traffic lanes. The friction level of the deck has been likely reduced. An AC overlay is not advisable on the existing bridge deck. A chip seal may be applied to the deck surface to increase friction after the existing deck is sealed and would not require structural analysis.

Approach AC

Repair the cracks in the approach AC.

5. BRIDGE RAILING REPLACEMENT

The west side railing is substandard and needs to be replaced if the structure is widened. A concrete barrier Type 732 is proposed. This should be structurally acceptable since the existing sidewalk is removed and the new barrier is lighter and placed away from the edge of deck. The removal of the sidewalk will require the west sidewalk deck surface to be refinished. It is likely the west overhang of the bridge needs to be reconstructed to accommodate a new pedestrian railing and supports for the City's sewer and water line utilities.

6. BRIDGE DECK OVERLAY AND RECONSTRUCTION

Based on the CME report there is no need for bridge deck reconstruction except for improving friction and sealing cracks over the bents. The placement of an AC overlay is not advisable as the existing bridge has not been designed to resist the weight of an additional wearing surface like AC. Use of a polyester concrete overlay would require a minimum depth of ¾". Another possibility for reconstructing the deck would be to plane off a portion of the concrete cover and refinish with a PCC (Portland Cement Concrete) overlay. This would restore friction and provide a homogeneous appearance for the existing and widened bridge deck. A third option would be to use a chip seal. A chip seal would be the least expensive option but it would wear out sooner than a new PCC overlay or polyester overlay.

7. TRAFFIC STUDY

A traffic study was not prepared in this phase of the project. Decisions will need to be made regarding whether to close Jaye Street and complete construction in one season or to leave two lanes of traffic open at all times and construct over two summer seasons. This decision does not have a material effect on the selection of the preferred alternative.

8. HYDRAULIC COMPATIBILITY

The existing structure has short spans of 24 ft and 32 ft. A slab widening will have an additional 7 piers in the river which could impede flow and cause significant backwater. From a hydraulic standpoint a CIP/PS concrete box girder with 73'-3", 97-6" and 73'-3" span configuration and a higher profile grade would be a better solution.

Neither a Location Hydraulic Study nor a Design Hydraulic Study has been authorized to be performed to determine the hydrology and hydraulic characteristics of the bridge site. However, several previous studies have been performed on this reach of the Tule River; the most recent by the U.S. Army Corps of Engineers. Information from this recent study as well as Boyle Engineering's Main Street Bridge Design Hydraulic Study at Tule River, and the minimal waterway area beneath the northern most bridge spans, leads us to believe that the structure in its present configuration does not seriously impede the water flow.

Excessive scour at this site dictates the use of large diameter piling and replacement of existing piles or implementation of scour countermeasures. To be effective, such countermeasures would need to extend

well beyond the limits of the project and require additional significant costs. Thus, the rehabilitation alternatives are not good options. TRC will determine final hydraulic design criteria and roadway profile grade in the next phase of the work.

9. GEOTECHNICAL INVESTIGATION

A preliminary geotechnical study has been performed to determine and evaluate the subsurface conditions at the bridge site and provide guidelines and criteria for the foundation design. Geotechnical work included an assessment of the potential seismicity at the site, identification of nearby faults, determination of the peak rock acceleration (PBA= 0.2g) at the site during the maximum credible earthquake, scour identification, and review of the as-built bridge plans and log of test boring. The results of this investigation have concluded that the recommended foundations are minimum displacement piles (H-piles or open ended pipe piles) or CIDH piles with slurry. The recommended H-pile is similar to the foundations designed for the existing structure. The existing piles are HP 10x42 and the as-built tip elevation is unknown.

The geotechnical report evaluated the soil for liquefaction potential during a seismic event. Based on the relative density of soils and low site seismicity, the potential for liquefaction and associated adverse consequences is anticipated to be low. This is favorable for the rehabilitation and widening alternative.

For additional information, please refer to the "Preliminary Geotechnical Design Memorandum, Rehabilitation/Widening or Replacement of Jaye Street over Tule River", provided in Appendix A.

10. REPLACEMENT STRUCTURE TYPE SELECTION

For the alternatives where the existing structure is to be replaced with a completely new structure, two structure types were considered:

1. Three-span cast-in-place prestressed concrete box girder
2. Seven-span cast-in-place reinforced concrete slab bridge

A seven-span slab bridge was selected to avoid interference with the pier locations of the existing eight-span bridge. The use of a slab bridge would provide the greatest hydraulic freeboard as it will have a lower structure depth of 1'-6½". The 3-span prestressed concrete box girder will have a greater structural depth of 4'-0" which will necessitate a raise in the profile grade to provide the same waterway area. It is evident that a three span cast-in-place prestressed concrete box girder bridge will significantly reduce the number of piers in the channel and would match the structure type and configuration of the Main Street Bridge.

A crucial issue for this project is the limited time the Contractor can have falsework in the Tule River due to restrictions by the Department of Fish and Game. Both structure types will require construction over two seasons due to construction staging. There isn't sufficient time to build either structure type in one season and keep the road open.

Both alternatives have a continuous superstructure that will provide greater stability in a maximum credible seismic event. In summary, it is recommended that Alternative 2, the CIP/PS box girder structure

type, be selected to evaluate replacing the existing structure. This structure type is the more economical, will provide the best performance during a seismic event, and will be better able to resist total scour. A Type Selection Memo (in standard Caltrans format) is included in Appendix E as are the bridge general plans for the alternatives considered. Cost estimates are included in Appendix F.

11. ALTERNATIVES ANALYSIS

INTRODUCTION

In this preliminary work, a total of four alternatives were examined for technical and economic feasibility. The following information and tables have been compiled to compare the cost of the two bridge rehabilitation and two replacement alternatives.

EXISTING CONDITION

The existing structure is in generally good condition as determined by Caltrans maintenance inspections and the structure has a good sufficiency rating of 76.7. The status of "structurally deficient" can be eliminated by placing mythacrylate, eliminating the deck cracking. The bridge is determined not to be scour critical but scour countermeasures are recommended if the rehabilitation alternative is selected.

Caltrans requires that when widening a bridge, the existing structure be evaluated to determine if it needs retrofitting. As a minimum the existing structure shall meet the no collapse requirement. Under seismic review, the structure does not meet current seismic standards. A seismic retrofit will upgrade the structure to resist seismic loads. Retrofit of the diaphragm abutments and placement of isolation casings at Pier 8 will be required. The economic cost of retrofitting this structure is estimated to be $84,000 including contingencies.

This study assumes the existing structure meets current hydraulic design criteria with the exception of scour. The in-kind widening is not likely to significantly affect the minimum soffit elevation for the 50-year design flood (2 ft freeboard) and the 100-year base flood. The replacement structure however will require a hydraulic study since the minimum soffit elevation could change. The COE is also intending to limit storage in the upstream Lake Success Dam, and this will increase flows in the Tule River.

GENERAL REQUIREMENTS

Profile Grade and Soffit Elevation

All alternatives are subject to the requirement that the soffit elevation meet current hydraulic requirements. The existing bridge has no vertical profile grade and deck drains are provided at each pier.

Order of Work

All alternatives will require two stages of construction if full closure of Jaye Street is not permitted.

River Access

There will be limited access to the bridge site from the riverbed due to restrictions imposed by various regulatory agencies, most notably the Department of Fish and Game. The time period in which the

Contractor will be allowed to place falsework in the Tule River is anticipated to be between June 1 and October 15.

Project Schedule

Widening Alternative 1A can be completed in one season. Alternatives 1B, 2, and 3 however would be scheduled to be performed over two seasons if complete road closure is not permitted by the City. This is due to two-stage construction while maintaining traffic and a limited construction window to construct the left and right widen or replacement structure.

Staging

In order to maintain vehicular traffic, construction of the project will need to be staged for all alternatives. The detailed description of each alternative appears below. The basic staging for each alternative is the same and will be as follows:

> Traffic will use the existing bridge during Stage 1 with one traffic lane open in each direction, while the eastern portion is constructed. During Stage 2, the traffic will be moved onto the new eastern portion, and the existing bridge would be replaced or rehabilitated. A closure pour will be completed at the end of Stage 2 construction to attach the two structures together.

For additional information on traffic and staging, a Traffic Study will be performed in the next phase of the work.

ALTERNATIVES

Two rehabilitation alternatives and two replacement alternatives are described, compared, and summarized below. Note that Alternative 2 requires raising the profile grade. The best four alternatives have been identified as follows:

1A. Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge
1B. Widen existing structure both sides – Eight-span CIP reinforced concrete slab bridge
2. Replace existing structure – Three-span CIP prestressed concrete box girder
3. Replace existing structure – Seven-span CIP reinforced concrete slab bridge

Bridge Advance Planning Study Sheets for Alternatives 1A, 1B and 2 are included in Appendix E. It would be useful for the reader to review these plans before reading the text below. The following is a brief description of the alternatives followed by a summary of the costs for each one.

Widen Alternative 1A

One season:

In Alternative 1A, the existing structure would be retrofitted to meet current seismic requirements and widened in-kind. For details on the retrofit, please refer to the "Preliminary Seismic Retrofit Strategy Determination" prepared by TRC Engineers and included in Appendix C. The new structure will have an overall appearance which will be similar to the existing. The slab thickness will be 1'-5", just 1" greater than existing. Piers will be similar, 1'-4"concrete pile extensions on CISS pipe piles or H-Piles.

The main advantage of this option is that it reuses existing structure components to the greatest extent, thus reducing costs for demolition and disposal. Also this alternative will maintain a hydraulic clearance

by using the shallowest of superstructure thicknesses. This structure will not require the profile grade to be raised. This will reduce the cost of the roadway work at both ends of the bridge. Construction will be simplified by using an RC slab bridge design and will achieve cost savings of utilizing the existing bridge.

The main disadvantages of this alternative include the following:

- Costs for seismic retrofit, scour countermeasures at piers, and deck rehabilitation.
- Costs for including Structure Approach Type R(10D) to accommodate the thermal movement at the diaphragm abutments.
- Hydraulic conveyance may be impeded and an increase of backwater flow may occur with increasing the number of piles in the river from 5 to 11 at each support location.
- Long-term effectiveness of the scour countermeasures.
- Existing 12" sewer and 10" water lines at west edge of bridge deck will need to be relocated during the removal of the existing sidewalk. These two utilities may require a permanent utility bridge or the west bridge overhang will need to be reconstructed to accommodate the utilities and pedestrian railing.
- MBGR would need to be placed in front of the sidewalks.

Widen Alternative 1B

In Alternative 1B, the existing structure would be widened on both sides and require the same seismic retrofit as Alternative 1A. Alternative 1B consists of an eight-span cast-in-place slab bridge. The West side widening is only 8 feet wide to line up with the existing sidewalk. Two piles will be required at reduced spacing of 5'-0" to fit the narrow widening.

The advantages are similar to Alternative 1A. Geometrically pleasing is the use of a concrete barrier Type 26 (modified) having a sidewalk and shifting the placement of the MBGR closer to the edge of deck.

The disadvantages of this Alternative are similar to Alternative 1A with the following additions.

- An Two additional season s will be required to complete the project.
- Non-economical with two piles on the west widening closely spaced. Nominal spacing of 70 Ton pile at Piers is 8'-6".
- Piles conflict with encased buried sewer line 5 feet from west edge of deck.
- Greater cost over Alternative 1A

Replacement Alternative 2

In this replacement alternative, a 3-span CIP/PS concrete box girder bridge is considered. The profile grade will need to be raised to accommodate a higher structure depth of 4'-0".

The main advantage of this structure is the reduced life cycle costs and longer service life with a replacement structure. Service life for a new structure is expected to be 100 years. The new structure will not need seismic retrofit and scour protection at the Piers. The fact that there are only two piers consisting of four piles each in the channel improves hydraulic conveyance, by increasing the clear opening and reducing the likelihood of debris hanging up on the piers. The minimum soffit elevation should be determined so that the change in the profile grade can be determined. Another advantage is that the utilities can be located within the box girder cells for added security.

This alternative has three major disadvantages:

- Additional roadwork costs will be experienced in matching the profile grade to the approach grades.
- Hydraulic recommendations need to be satisfied including meeting the minimum soffit elevation.
- Complex foundation work due to the use of drilled foundation as opposed to driven piles in Alternatives 1A, 1B and 3. CIDH piling in the wet condition is recommended by geology and inclusion of temporary casing.
- Requires two seasons to complete the project.
- Significantly greater costs than Alternatives 1A and 1B.

Replacement Alternative 3

A seven-span reinforced concrete slab bridge is considered. Span configurations will be 27'-6", 5 @ 37'-0", 27'-6" and bridge length will be 241'-6" to match the existing.

The main advantage of this structure is the structure depth will be minimized. Roadway costs would be minimized as the profile grade will be maintained. Geometrically the structure can be aligned horizontally with the approach sidewalk and a standard Concrete Barrier Type 26 (Mod) would be used on both sides of the bridge. The MBGR can be shifted away from the travelled way towards the edge of deck.

The main disadvantages of this structure replacement are:

- Scour problems would plague this structure just as the existing slab bridge on pile extensions. Numerous piles would be in the channel restricting flow.
- 48" RCP draining to Hubbs Minor Ditch would need to be relocated away from proposed new Pier locations.
- Requires two construction seasons to complete the project.

SUMMARY OF ALTERNATIVES

The following table (Table 1) presents a summary of the various costs of each of the alternatives. For a more detailed breakdown of the quantities and costs, please refer to Appendix F. It is important to note that while the capital costs are critical to the decision making process, other issues also play a role. Issues that were weighed in selecting the "best" alternative include the following items:

- Technical Merit

- Overall Safety (motor vehicles, bicycles, pedestrians etc.)
- Acceptability of Approach Grade
- Life Cycle Costs
- Design Schedule
- Construction Schedule
- Aesthetics and Community Impact
- Federal Funding Participation
- Exposure to Risk

TABLE 1 ALTERNATIVE COST SUMMARY

COST COMPONENT	RETROFIT/REHABILITATION ALTERNATIVES		REPLACEMENT ALTERNATIVES	
	1A	1B	2	3
Roadway Subtotal*	$690,386	$683,178	$719,410	$689,410
Earthquake Retrofit	$53,844	$53,844	$0	$0
Bridge (Widen & Rehab or Replace)	$2,233,841	$2,680,609	$4,636,000	$4,404,960
Bridge Subtotal	$2,287,685	$2,734,453	$4,636,000	$4,404,960
Bridge and Roadway Subtotal	$2,978,071	$3,417,631	$5,355,410	$5,094,370
Mobilization (10%)	$330,897	$379,737	$595,046	$566,041
Contingencies (25%)	$827,242	$949,342	$1,487,614	$1,415,103
Bridge and Roadway Total	$4,136,210	$4,746,710	$7,438,070	$7,075,514
Bridge Removal (portion)	$37,917	$37,917	$125,000	$125,000
Total W/Removal Costs	$4,174,127	$4,784,627	$7,563,070	$7,200,514
For Budget Purposes**	**$4,180,000**	**$4,790,000**	**$7,570,000**	**$7,210,000**

Alternative 1B is marked up by 20% over Alternative 1A for two construction seasons

* Roadway costs assume an unchanged profile grade (P.G.) except for Alternative 2 where a 1' increase in P.G. is assumed.

** Cost Estimate as of 8/15/08, add 5% per year for Future Budget Purposes

Life Cycle Costs Analysis

The results of our quantity and unit prices show that the complete replacement Alternative 2 is more expensive than the rehabilitation Alternative 1A considering initial costs only. However, the cost analysis needs to consider life cycle costs associated with the remaining service life of the existing bridge that is to remain in the rehabilitation alternatives. Therefore TRC performed a life cycle cost analysis to determine the present value cost in today's dollars associated with the rehabilitation alternatives constructed now, followed by a future replacement of the portion of the bridge constructed in 1970 at the end of its 75 year service life (in 2045).

For the life cycle analysis, the following assumptions were made:

- The expected service life of the existing structure is assumed to be 75 years. As of this the date of this report there are 37 years remaining in the service life of the existing bridge. It can be reasonably assumed that the expected service life of a new structure is likely greater at 100 years, considering current design codes using higher design liveloads, state of the art seismic design procedures with detailing, and more stringent quality control standards during construction, etc.
- An interest rate of 4% per year (discount rate), compounded annually, was assumed for the purpose of estimating the amount of money in current dollars that would need to be invested now in order to accumulate the required amount of money in 2045 for replacement of the bridge portion constructed in 1970. In fact all future costs are discounted 4% annually to the present.
- Additional cost for maintenance was considered for the existing structure ($2,000 per year) and new structure ($1,000 per year) over the course of the service life.
- A salvage value for the anticipated replaced portion of the structure in 2045 was discounted from the year 2110.

Two analyses were performed to evaluate life cycle costs of rehabilitation versus replacement. The first analysis considers a high rate of future construction cost inflation, 7%. Please refer to Appendix G for justification for the 7 % construction cost inflation. The second analysis calculates the break-even inflation rate, such that the life cycle costs of rehabilitation and replacement are equivalent. This latter analysis is useful for decision making in that if one believes that the rate of construction cost inflation is going to be greater than the break-even rate, then one would recommend replacing the structure. If one believes the rate will be less, then one would recommend rehabilitating the structure, all other factors being equal.

The results of our life cycle costs analysis is as follows:

High Inflation Rate Case

Alternative 1A
Rehabilitation: Present Value Bridge Construction Cost: $11.20 million

Alternative 2
Replacement: Present Value Bridge Construction Cost: $ 7.59 million

The life cycle cost analysis shows that the replacement Alternative 2 is economically preferred over the rehabilitation Alternative 1A. The analysis was sensitive to the rate of construction cost inflation.

Break-Even Inflation Rate Case

The break-even point for both alternatives was a construction cost inflation rate of 4.9 %. If the construction cost inflation rate is expected to be above 4.9 % then the replacement alternative will present the best use of public funds when considering the eventual need to replace the existing 1970 structure as part of the rehabilitation alternative. It should be noted that for an assumed discount rate of 3 %, the break-even construction cost inflation rate drops to 3.95 %. A copy of our life cycle cost analysis calculation is provided in Appendix G of this study.

Current Funding Analysis

The City should give consideration to their ability to provide matching funds at this time. Assuming an 88.53% HBP participation factor, the City needs to provide 11.57% of the project costs from its own funds. These values are estimated below for the four alternatives:

ALTERNATIVE	TOTAL COSTS	11.47% CITY MATCH
1A	$4,180,000	$479,446
1B	$4,790,000	$549,413
2	$7,570,000	$868,279
3	$7,210,000	$826,987

As can be seen, for the rehabilitation Alternative 1A the City would need about $479,000 in matching funds, while for the replacement Alternative 2 the City would need about $868,000 in matching funds. These costs should be increased to the mid-point of construction by 5% per year and 15% to account for future inflation and construction engineering respectively.

12. CONCLUSIONS AND RECOMMENDATIONS

The following are our conclusions and recommendations for this project:

1. The preferred alternative to construct and maintain is to replace the existing bridge with a 3-span CIP/PS concrete box girder structure (Alternative 2). This recommendation is based on the likelihood of the existing slab bridge being rendered scour critical if the scour depth determined by hydraulic study is greater than 10 feet; which is expected. We also expect that construction cost inflation will exceed the break even rate of 4.9 % in the future which favors replacement. However, the risk of future scour problems weigh heavily in this recommendation as complete replacement could be required as such time as scour exceeds 10' and local scour counter-measures would be ineffective.

   Alternative 2 has the following advantages:

   - Structure will be designed for scour and hydraulically minimizing the number of supports or obstructions in the river.
   - Best seismic resistance
   - Improved drainage and match existing alignment
   - Relatively easy construction and staging requirements
   - 100 year life span, providing the lowest life cycle costs.
   - Lower maintenance costs, relative to the rehabilitation alternatives
   - Lower risk of sudden failure due to a significant storm event

2. The replacement structure shall be 76 feet wide. This provides for two 12'-0" and two 14'-0" thru traffic lanes, and a 12'-0" shared left-turn lane in the median. 6'-0" wide Concrete Barrier Type 26 with sidewalk on each side of the bridge would be provided to separate pedestrians from vehicular traffic. Alternatively, the City may decide to add Concrete Barrier Type 27 (1'-5" wide) to separate pedestrians from vehicular traffic, in which case the bridge width will be 78'-10".

3. Large diameter shafts are recommended for the foundation.

4. The structure must be built over two seasons due to the complexity of work and the limits on construction in the river channel, as the City has stated Jaye Street cannot be closed during construction.

5. To prevent construction delays resulting from interference with the sewer and waterline utilities, the City of Porterville should relocate their facilities prior to the start of the second construction season during which the existing structure supporting these utilities would be removed.

6. The City should consider their ability to provide the significantly higher amount of matching funds for the replacement alternative before choosing that option.

13. DECISION AND ACTION ITEMS

Before proceeding with the detailed design, the following activities should be performed:

- Select, with City, the desired alternative(s) for further investigation and design.
- Present this study to the COE, indicating two working seasons to complete Jaye Street Bridge Replacement.
- Obtain Hydraulic report with scour assessment for alternative(s).
- Obtain Caltrans written approval of the Rehabilitation Study, Hydraulic Report, Geotechnical Report, Final Seismic Retrofit Strategy Determination, and Bridge General Plan.
- Obtain environmental clearance to maintain eligibility for Federal funding.
- Apply for COE and DFG permits to ascertain their requirements and design accordingly.
- Submit revised HBP funding request.
- Submit Utility "A" letters to affected utilities.

14. REFERENCES

1. "Preliminary Design Memo, Rehabilitation/Widening or Replacement of Jaye Street Bridge over the Tule River" Porterville, California, by Kleinfelder, Fresno, CA, April 28, 2008.

2. "Porterville – Jaye Street Bridge Materials Testing", prepared for the City of Porterville by Christensen Materials Engineering, April 18, 2008.

3. "Design Hydraulic Study, Main Street Bridge at Tule River", prepared for the City of Porterville by Boyle Engineering Corporation, January, 1999.

4. "Main Street Bridge at Tule River, Porterville, California", Location Hydraulic Study, Boyle Engineering Corporation, June, 1997.

5. "Underwater Evaluation and Repair of Bridge Components", (DP 98), FHWA, November, 1995.

6. "Countermeasures to Protect Bridge Piers from Scour", NCHRP Report 593, Transportation Research Board, 2007.

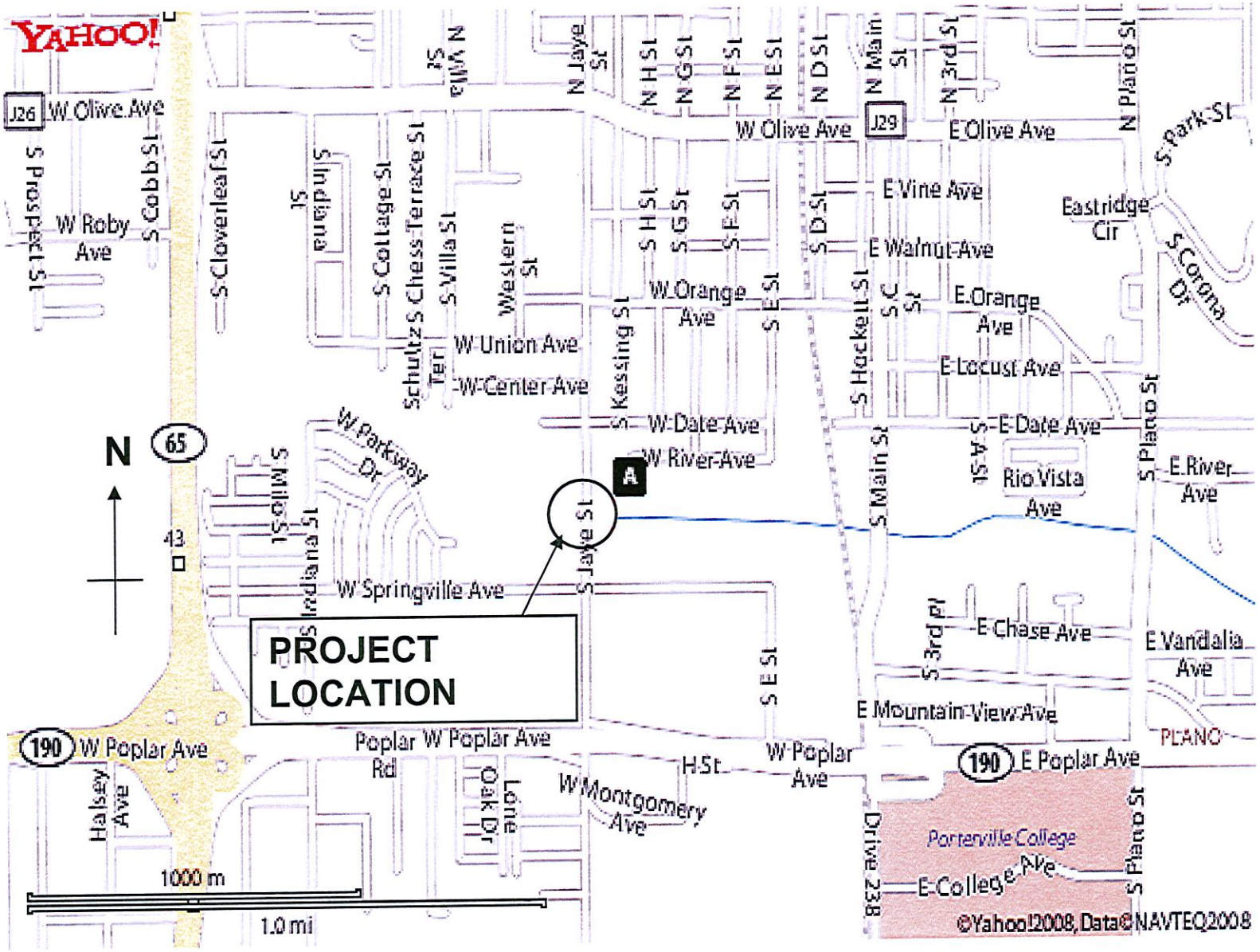

PLATE 1
PROJECT LOCATION MAP

APPENDIX A

Preliminary Geotechnical Design Memorandum

April 28, 2008
Project No.: 93402

TRC Engineers
10680 White Rock Road, Suite 100
Rancho Cordova, California 95670

Attention: Mr. Mark Imbriani

Subject: Preliminary Design Memo
Rehabilitation/Widening or Replacement of Jaye Street over the Tule River
Porterville, California

Dear Mr. Imbriani:

The following information provides our best indication of the anticipated design issues for the Jaye Street Bridge. The information is based on our experience with Plano Street at the Tule River, review of a copy of the original Log-of Test Borings Drawing for the existing Jaye Street Bridge, and review of Caltrans bridge maintenance reports.

REVIEW OF EXISTING DATA

Maintenance Reports

According to the reports, the existing bridge was built in 1970. It is an 8-span reinforced concrete slab supported on diaphragm abutments. The foundations are HP 10x42 steel piles, with pile extensions to the deck. The existing structure is about 34 feet wide and 242 feet long.

Caltrans Bridge Inspection Reports from June 3, 1971 through September 30, 2003 were provided for the existing Jaye Street Bridge (on Tule River), Br. No. 46C0099. The reports indicate channel degradation has dropped the channel about 5 feet from 1970 to 2003. According to the reports, degradation has exposed 1.5 to 3.25 feet of

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the pile extensions at Piers 2 through 5. At piles 1 and 5 of Pier 4, the steel H-piles are exposed.

Existing Log of Test Borings

Based on the existing LOTB and published geologic maps, the surface soil consists of Holocene age fan deposits at the abutments and recent river sediments within the channel. These upper sediments extend to a depth of about 28 feet at Abutment 1 and 35 feet at Abutment 8. The alluvial sediments at the piers ranged in depth from 21 to 26 feet (prior to noted channel degradation). The alluvial material consists primarily of fine to coarse sand with scattered gravel.

The upper Holocene sediments are underlain by older Pleistocene age sediments. These older geologic units consist of a relatively thin (3 to 10 feet thick) mantle of Riverbank Formation overlying the upper Turlock Lake Formation. The Riverbank Formation is comprised primarily of dense to very dense clayey sand with gravel and cobbles. The underlying Turlock Lake Formation consists of very stiff to very hard sandy to silty clay.

The groundwater at the site is significantly influenced by the flow level and duration in the Tule River and will generally coincide with the river level. With the presence of relatively clean granular channel sediments, groundwater elevations are anticipated to fluctuate rapidly.

SITE SEISMOLOGY

Table 1 presents a list of significant active or potentially active faults within approximately 100 kilometers of the project site and their respective moment magnitudes (Mualchin, 1996). Site bedrock acceleration, using a deterministic approach for the respective faults, is also presented based on Mualchin and Sadigh (1997).

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TABLE 1
LOCAL FAULTS AND ESTIMATED MOMENT MAGNITUDES

Fault	Approximate Distance from Site (km)	Maximum Credible Earthquake (Moment Magnitude, M_w)	Peak Bedrock Acceleration (g)
Kern Front	21	6.25	0.14
White Wolf	90	7.75	<0.1
Coast Ranges-Sierran Block Boundary Zone	91	7.0	<0.1
Independence	92	7.0	<0.1
Sierra Nevada – Owens Valley	93	8.0	<0.1

LIQUEFACTION POTENTIAL

In order for liquefaction, and possible associated effects, of soils due to ground shaking to occur, it is generally accepted that four conditions will exist:

Generally, four conditions must be present for liquefaction to occur:

- The subsurface soils are in a relatively loose state;
- The soils are saturated;
- The soils are non-plastic; and,
- Ground shaking is of sufficient intensity to act as a triggering mechanism.

Based on the estimated relative density of the soils beneath proposed supports and anticipated ground shaking at the site, the potential for liquefaction and associated adverse consequences (e.g. settlement or vertical and lateral capacity reduction) is anticipated to be very low. Surficial (approximately 10 feet) channel sediments, which likely represent historic scour, have a low relative density and could be subject to liquefaction. However these soils are not considered in foundation support and, therefore, would likely not pose any risk to the structure foundations.

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SEISMIC DESIGN CRITERIA

In applying the present Caltrans seismic design criteria to the bridge, a peak bedrock acceleration (PBA) of 0.2g is anticipated. The Figure B.7 ARS curve (Soil Profile D, Magnitude =6.5±0.25) from Caltrans Seismic Design Criteria, Version 1.4, June 2006, would be appropriate for preliminary planning. There would not be any increase in the PBA or spectral accelerations due to proximity or faulting mechanism.

CHANNEL SCOUR

As previously mentioned, bridge maintenance reports indicate about 5 feet of degradation of the channel since 1970. The 1969 borings for the existing bridge identify "geologically recent scour." This reference is to post-Pleistocene erosion in the geographic region. Fan deposits over the past 10,000 years have produced the present general topography. Penetration data shown in the as-built LOTB would indicate a depth of historic scour in 1970 of about 10 to 12 feet.

BRIDGE FOUNDATIONS

It is assumed the existing HP 10x42 piles were designed for about 45 tons/pile (service load). If provided with the as-built tip elevations, the estimated capacity of the existing piles could be provided.

Based on the available subsurface data, spread footings would likely not be a suitable alternative for bridge support due to marginal bearing capacity, and the potential scour risk. CIDH and driven piles are anticipated to be appropriate foundation alternatives for new pile construction. For the use of CIDH piles, either slurry assisted drilling or the advancement of temporary casing will likely be required to facilitate construction. It is anticipated that the dense and stiff nature of the Riverbank and Turlock Lake formations would create driving difficulty with displacement piles (Class 140 or 200 precast piles). Therefore, minimum displacement piles (i.e. H-piles or open-ended pipe piles [Class 140, Alternate W] with center relief drilling) would likely be appropriate driven pile alternatives.

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Axial Capacity

Table 2 provides the estimated tip elevations for HP 10x57 piles designed for a service load of 140 kips/pile and a nominal load of 280 kips/pile.

TABLE 2
AXIAL CAPACITY OF HP 10X57 PILES

Support	Design Load (kips)	Nominal Load (kips)	Estimated Tip Elevation (1) (feet)
Abutments	140	280	33
Piers	-	280	29

(1) Assumes Elevation 100 for bridge deck

Table 3 provides the estimated tip elevation for Class 140, Alternate W, driven piles. Center relief drilling may be necessary to facilitate driving.

TABLE 3
AXIAL CAPACITY CLASS 140, ALTERNATE W

Support	Design Load (kips)	Nominal Load (kips)	Estimated Tip Elevation (1) (feet)
Abutments	140	280	48
Piers	-	280	41

(1) Assumes Elevation 100 for bridge deck

Table 4 provides the estimated tip elevations for CIDH piles. The data considered Caltrans standard 16-inch and 24-inch diameter CIDH piles at the abutments and piers. In addition, data is provided for 5-foot diameter CIDH piles at the piers. The 5-foot diameter piles have considered nominal loads of 1000, 1500, and 2000 kips. The 16-inch diameter piles would require the use of temporary casing at least to the Turlock Lake formation (about Elevation 58). The 24-inch and larger CIDH could consider slurry assisted drilling or temporary casing (to the Turlock Lake formation).

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TABLE 4
AXIAL CAPACITY CIDH PILES

Support	Diameter (inches)	Design Load (kips)	Nominal Load (kips)	Estimated Tip Elevation (1) (feet)
Abutments	16	140	280	50
	24	200	400	51
Piers	16	-	280	47
	24	-	400	48
	60	-	1000	48
	60	-	1500	37
	60	-	2000	27

(1) Assumes Elevation 100 for bridge deck

Lateral Capacity

Table 5 provides a preliminary geotechnical profile and parameters for use in evaluating the lateral response of piles by LPILE.

TABLE 5
LPILE PARAMETERS

Elevation (1) (feet)	Recommended P-Y Curve	γ (pci)	ϕ (degree)	c (psi)	k (pci)	ε_{50}
100-87	Sand	0.065	32	0	50	-
87-65	Sand	0.035	32	0	40	-
65-59	Sand	0.040	37	0	150	-
Below 59	Stiff Clay with Free Water	0.040	-	50	600	0.005

(1) Assumes Elevation 100 for bridge deck

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If necessary for the type selection process, stiffness parameters for the various pile alternatives could be developed.

CLOSING

Kleinfelder appreciates the opportunity to be of service to TRC Engineers and their subconsultants. Should there be any questions, or if additional information is necessary, please contact this office.

Respectfully Submitted,

KLEINFELDER

Neva M. Popenoe, EIT
Staff Engineer

David L. Pearson, PE, GE
Principal Geotechnical Engineer

NMP:DLP:llp

REGISTERED PROFESSIONAL ENGINEER
DAVID L. PEARSON
No. 674
Exp. 12/31/09
GEOTECHNICAL
STATE OF CALIFORNIA

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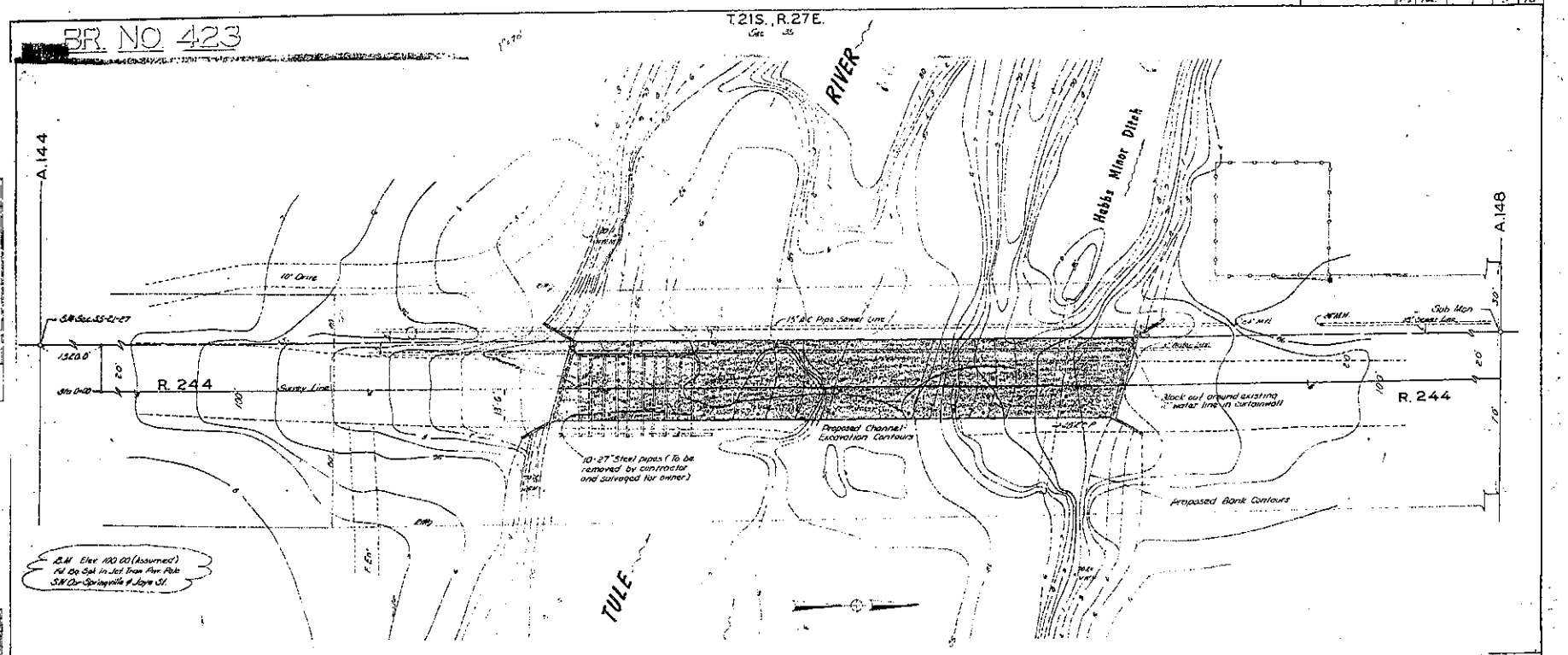
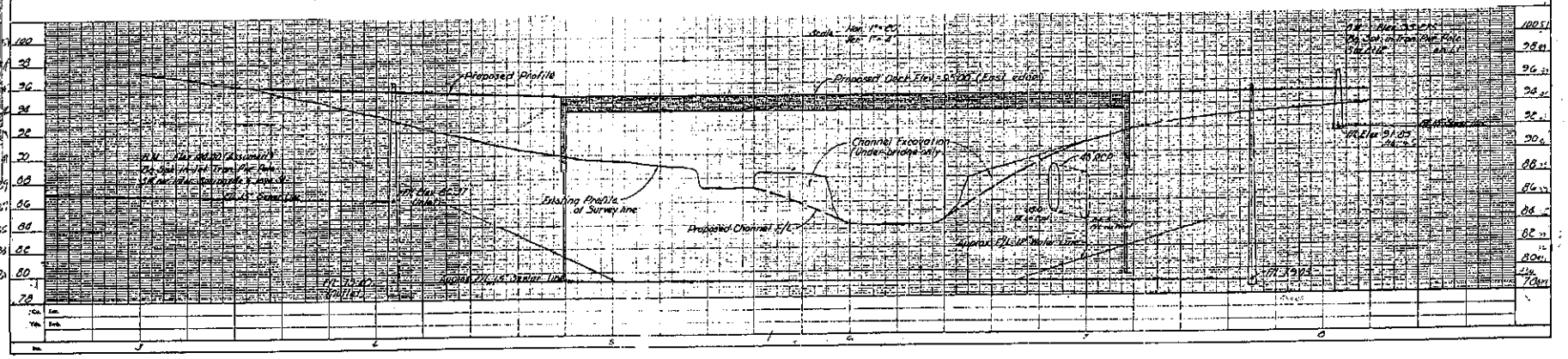
APPENDIX B

Bridge As-Builts

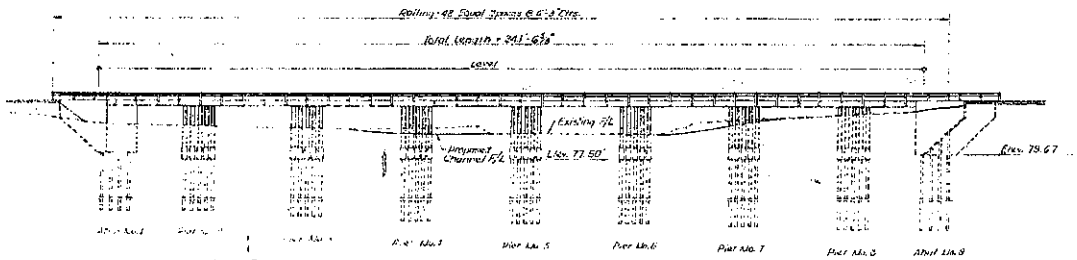
FEDERAL AID PROJECT NO.	DIST.	COUNTY	ROUTE	SEC.	SHEET NO.	TOTAL SHEETS
	1-8	Fres.			5	10

BR. NO 423

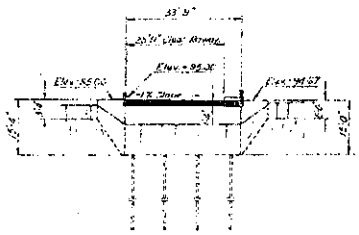




FEDERAL AID PROJECT NO.	DIST	COUNTY	ROUTE	SEC.	SHEET NO.	TOTAL SHEETS
					6	10



ELEVATION



TYPICAL SECTION

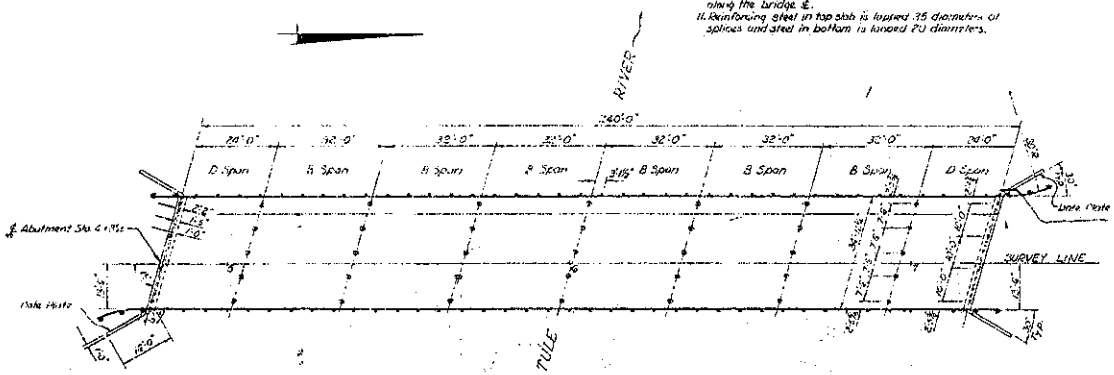
	Spring Line Elev.	Soffit Elev.	Soffit Elev. Trans. Pier Pole
Abut. No. 1	95.0		95.0
Pier No. 2	94.4		95.0
Pier No. 3	95.5		95.0
Pier No. 4	95.0		95.0
Pier No. 5	95.0		95.0
Pier No. 6	94.0		95.0
Pier No. 7	94.0		95.0
Pier No. 8	95.0		95.0
Pier No. 9	95.0		95.0
Abut. No. 9	95.0		95.0

GENERAL NOTES

1. All concrete shall be class "A" concrete, i.e. six sacks of Portland Cement per cubic yard.
2. All exposed edges of concrete shall be chamfered one inch.
3. All reinforcing steel to have a minimum covering of 1½" of concrete, "E" to obtain reinforcement.
4. All reinforcement steel, except as shown on "BENDING SCHEDULE" to be bent on the job.
5. Design Stress: fs = 20,000 #/in², fc = 1200 #/in², n = 10.
6. LIVE LOAD: H2 20-44.
7. Spacing of transverse slab reinforcing steel is measured along the bridge ℄.
8. Spacing of longitudinal slab reinforcing steel is measured perpendicular to bridge ℄.
9. Spacing of stirrups is measured along the skew.
10. Spacing of the distribution reinforcing steel is measured along the bridge ℄.
11. Reinforcing steel in top slab is lapped 35 diameters of splices and steel in bottom is lapped 20 diameters.

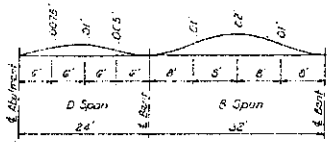
BM Elev. 100.00 (Assumed)
Flange Spk. in Jct. Trans. Pier Pole
S.W. Cor. Inter. Springville ℄ & Jaye St.

BM Elev. 95.275
Flange Spk. in Trans. Pier Pole
Sta. 8+12, on Lt.



PLAN

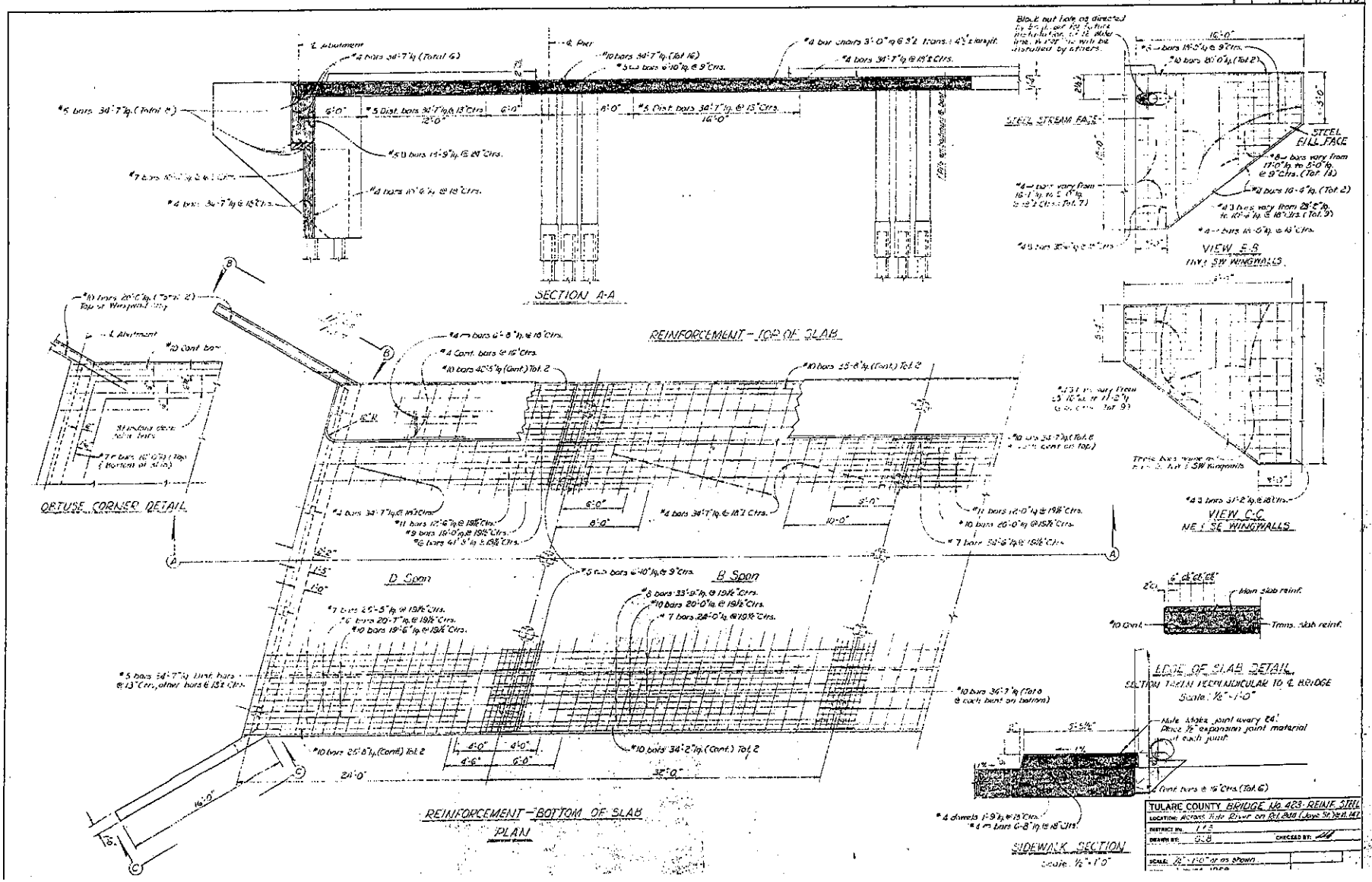
Scale: 1/16" = 1'-0"



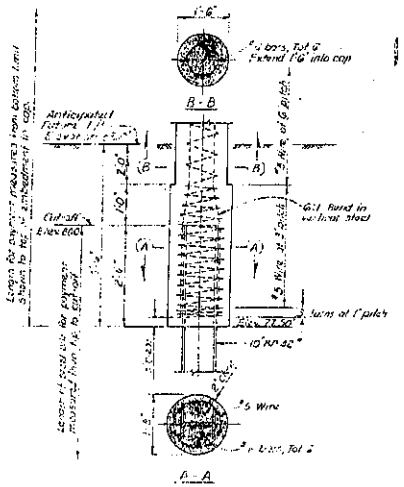
CAMBER DIAGRAM

No Scale

TULARE COUNTY BRIDGE No. 428 - LAYOUT
LOCATION: Across Tule River on Rd. 244 (Jaye St.) @ Av. 147
DISTRICT No. 115
DRAWN BY: GLB
CHECKED BY: AHL
SCALE: 1/16" = 1'-0" or as shown

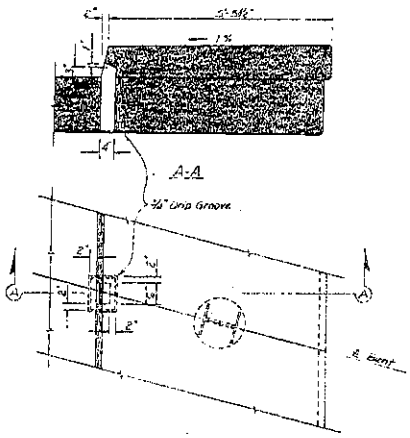

SECTION A-A
REINFORCEMENT - TOP OF SLAB
REINFORCEMENT - BOTTOM OF SLAB
PLAN
OBTUSE CORNER DETAIL
VIEW E-E
NW & SW WINGWALLS
VIEW C-C
NE & SE WINGWALLS
STEEL STREAM FACE
STEEL FILL FACE
B Span
EDGE OF SLAB DETAIL
SIDEWALK SECTION
TULARE COUNTY BRIDGE No. 423 - REINF. STEEL

FEDERAL AID PROJECT NO.	DIST.	COUNTY	ROUTE	SEC.	SHEET NO.	TOTAL SHEETS
					8	10



CONCRETE PILE EXTENSION FOR 10" BP 42#

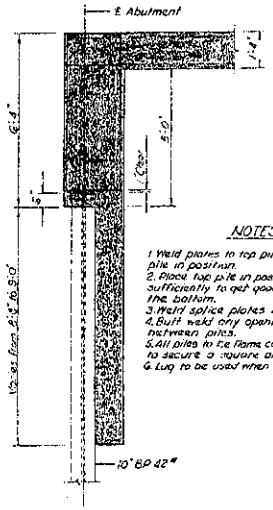
Scale: 3/4" = 1'-0"



DECK DRAIN DETAIL

AT EACH BENT ON CURB SIDE

Scale: 3/8" = 1'-0"

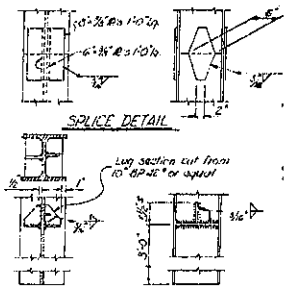


ABUTMENT SECTION

Scale: 1/2" = 1'-0"

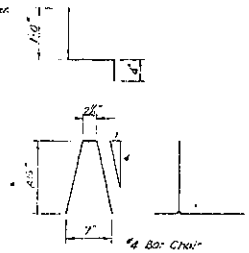
NOTES

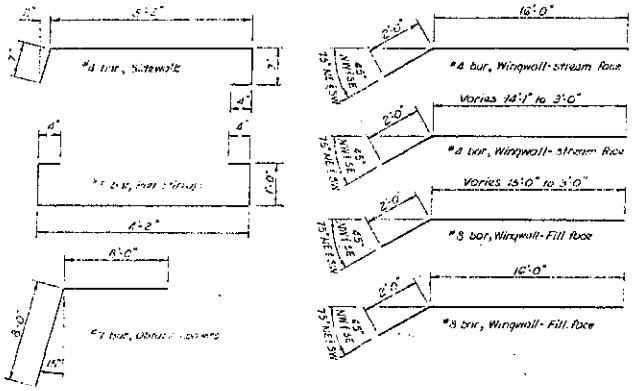
1. Weld plates in top pile before placing pile in position.
2. Place top pile in position and hammer sufficiently to get good bearing on the bottom.
3. Weld splice plates to bottom pile.
4. Butt weld only opening remaining between piles.
5. All piles to be flame cut using a steel yoke to secure a square and even cut.
6. Lug to be used when ordered by the Engineer.



10" BP 42# STEEL PILE DETAILS

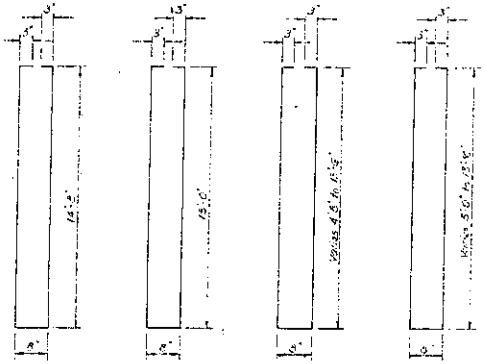
No Scale

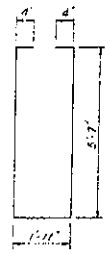




BENDING SCHEDULE

No Scale





TULARE COUNTY BRIDGE No. 42 3 - DETAILS

LOCATION: Across Tule River on Rd 244 (Laye St.) 1.6 A. N.

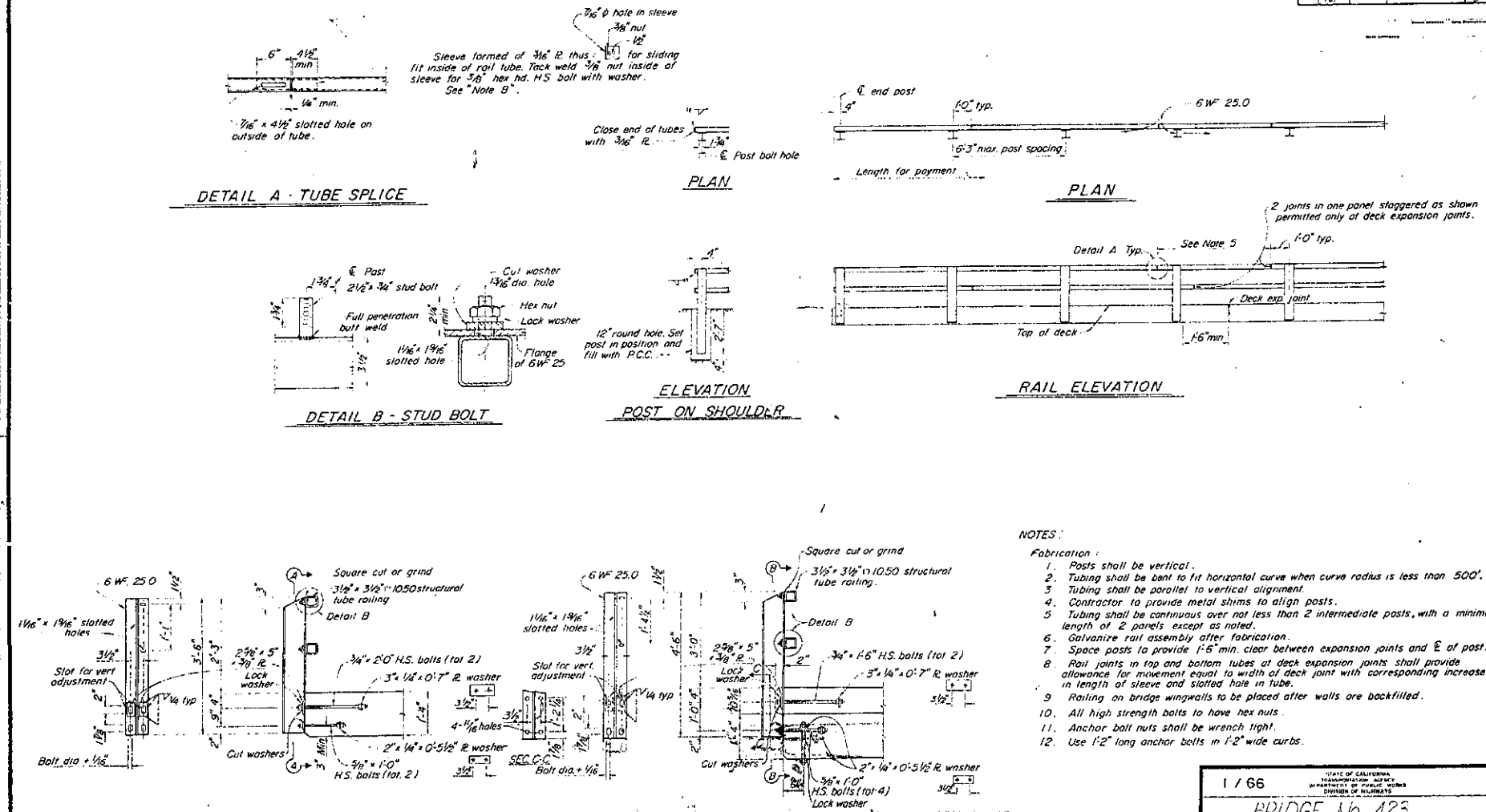
DISTRICT No. 1-5

DRAWN BY: [illegible] CHECKED BY: [illegible]

SCALE: As shown

DATE: [illegible]

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
	Tul			9	10



NOTES:

Fabrication:

1. Posts shall be vertical.
2. Tubing shall be bent to fit horizontal curve when curve radius is less than 500'.
3. Tubing shall be parallel to vertical alignment.
4. Contractor to provide metal shims to align posts.
5. Tubing shall be continuous over not less than 2 intermediate posts, with a minimum length of 2 panels except as noted.
6. Galvanize rail assembly after fabrication.
7. Space posts to provide 1'-6" min. clear between expansion joints and ℄ of post.
8. Rail joints in top and bottom tubes at deck expansion joints shall provide allowance for movement equal to width of deck joint with corresponding increase in length of sleeve and slotted hole in tube.
9. Railing on bridge wingwalls to be placed after walls are backfilled.
10. All high strength bolts to have hex nuts.
11. Anchor bolt nuts shall be wrench tight.
12. Use 1'-2" long anchor bolts in 1'-2" wide curbs.

1 / 66

STATE OF CALIFORNIA
TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

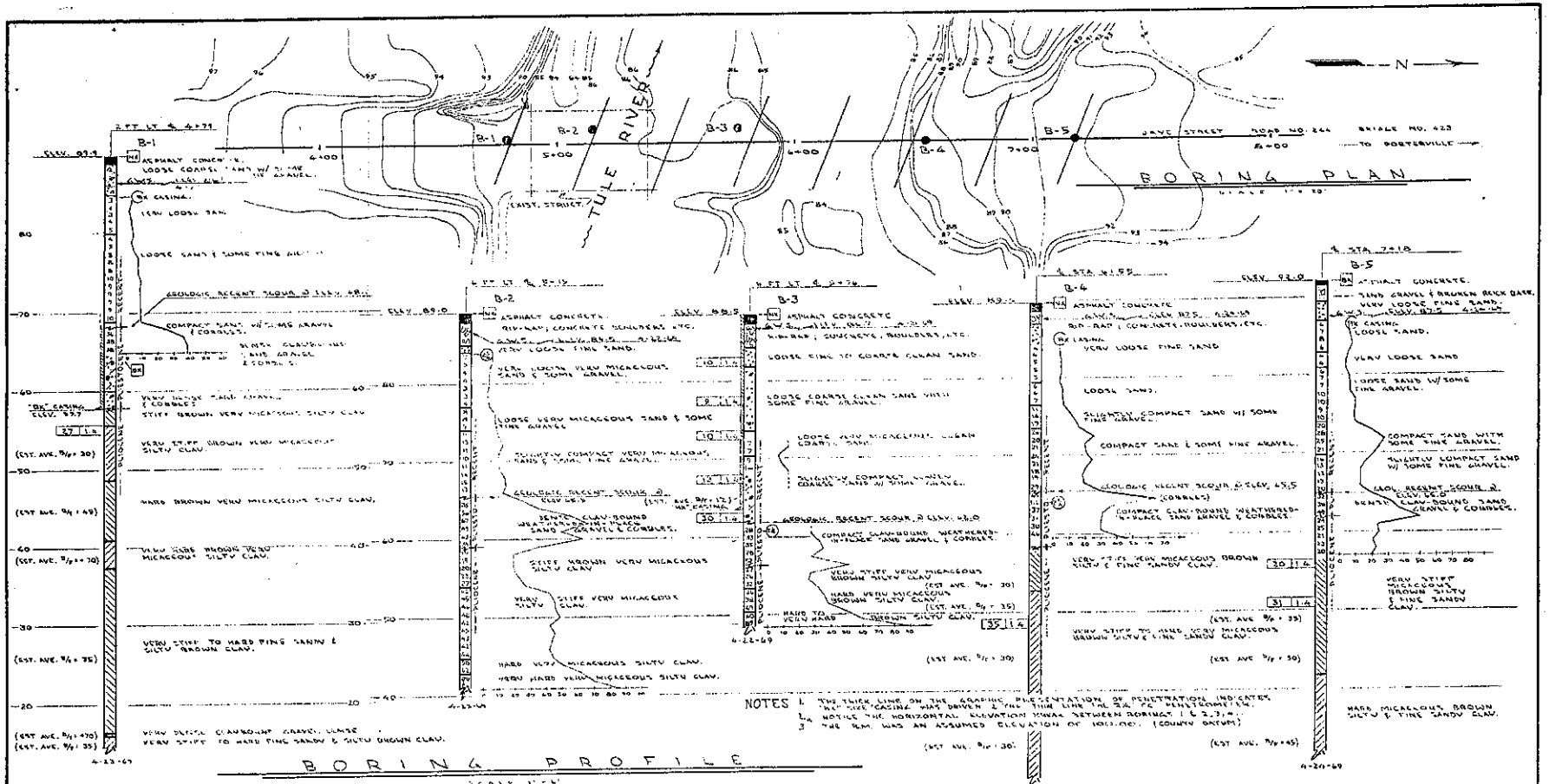
BRIDGE No. 42S

Approx. Tule River on Rd. 342 (Joye St.) @ Avd. 147

METAL TUBE BRIDGE RAILING

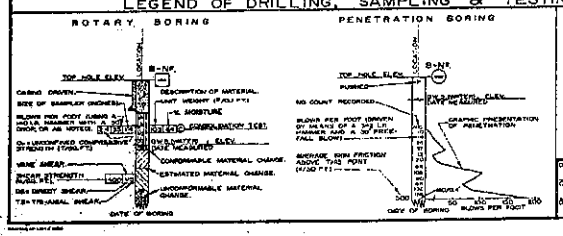
BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF

REVISION DATES — PRELIMINARY STAFF ONLY



NOTES 1. THE THICK LINE ON THE GRAPHIC PRESENTATION OF PENETRATION INDICATES "BX" SIZE CASING HAS DRIVEN 1 FT. THE SAME FOR REMAINDER OF THE BORING.
2. NOTICE THE HORIZONTAL ELEVATION INTERVAL BETWEEN BORINGS 1 & 2, 3 & 4.
3. THE B.M. WAS AN ASSUMED ELEVATION OF 100.00. (COUNTY DATUM)

LEGEND OF DRILLING, SAMPLING & TESTING OPERATIONS



THE UNIFIED SOIL CLASSIFICATION SYSTEM

MAJ. DIV.	LETTER	SYMBOL	NAME
COARSE GRAINED SOIL — GRAVEL AND GRAVELLY SOIL	GW		WELL-GRADED GRAVEL OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
	GP		POORLY-GRADED GRAVEL OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
	GM		SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.
	GC		CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURES.
SAND AND SANDY SOIL	SW		WELL-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.
	SP		POORLY-GRADED SAND OR GRAVELLY SAND, LITTLE OR NO FINES.
	SM		SILTY SAND, SAND-SILT MIXTURES.
	SC		CLAYEY SAND, SAND-CLAY MIXTURES.
FINE GRAINED SOIL — SILTS AND CLAYS LIQUID LIMIT UNDER 50	ML		INORGANIC SILT AND VERY FINE SAND, ROCK FLOUR, SILTY OR CLAYEY FINE SAND OR CLAYEY SILT WITH SLIGHT PLASTICITY.
	CL		INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAY, SANDY CLAY, SILTY CLAY, LEAN CLAY.
	OL		ORGANIC SILT AND ORGANIC SILT-CLAY OF LOW PLASTICITY.
SILTS AND CLAYS LIQUID LIMIT OVER 50	MH		INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT, ELASTIC SILT.
	CH		INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAY.
	OH		ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT.
HIGHLY ORGANIC SOILS	Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS.

ROCK CLASSIFICATION

SYMBOL	NAME
	IGNEOUS ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

NOTE: CLASSIFICATION OF EARTH MATERIAL SHOWN OF THIS SHEET IS BASED UPON FIELD INSPECTION UNLESS NOTED OTHERWISE.

SOIL CONSISTENCY CLASSIFICATION

CONSISTENCY		* BLOWS PER FT.
GRANULAR	COHESIVE	
VERY LOOSE	VERY SOFT	0 TO 5
LOOSE	SOFT	5 TO 10
SLIGHTLY COMPACT	STIFF	10 TO 20
COMPACT	VERY STIFF	20 TO 30
DENSE	HARD	30 TO 50
VERY DENSE	VERY HARD	50

* PROGRESSIVE PENETRATION TEST, BLOWS PER FT (POLE HAMMER, 30" FREE-FALL BLOW USING A 2" OD x 1 3/8" ID SAMPLER)

DWN. W. Chan
CHK. Chan
DATE:
REG. CIVIL ENG. NO. 2958
ENGINEERING GEOLOGIST

CLAIR A. HILL & ASSOCIATES
FOUNDATION ENGINEERING & TESTING LABORATORY
1026 COURT STREET REDDING, CALIFORNIA

LOG OF TEST BORING 3
RD NO. 244 BR. NO. 423
JAVE STREET BRIDGE
TULARE COUNTY CALIFORNIA

DWG. NO. C-1117-04

APPENDIX C

Preliminary Seismic Retrofit Calculations and Strategy

Summary of Seismic Results (ESA)

	Concrete Pile Extension						Steel HP Pile Portion									SDC 7.7.4	SDC 2.2.3
Longitudinal	Leq ft	Lp in	ϕ_y per ft	θ_p rads	Δy in	Δp in	Ls ft	Fy ksi	S in3	My k-ft	E ksi	I in4	Δypile in	ΔC in	ΔD in	D/C ratio	U_D $=\Delta p/\Delta y$
Pier 4																	
Seismic no scour	13.17	20.35	0.003658	0.05578	2.5	8.2	7.64	36	24.4	73.1	29000	81.6	1.56	12.3	1.37	0.11	0.33
Seismic with total scour 9 ft	13.17	20.35	0.003658	0.05578	2.5	8.2	16.64	36	24.4	73.1	29000	81.6	7.39	18.2	3.55	0.20	0.36
Pier 8																	
Seismic no scour	8.20	20.35	0.003658	0.05578	1.0	4.9	0	36	24.4	73.1	29000	81.6	0.00	5.9	1.37	0.23	1.39
Seismic with total scour 9 ft	13.17	20.35	0.003658	0.05578	2.5	8.2	4.04	36	24.4	73.1	29000	81.6	0.43	10.8	3.55	0.33	1.20
Transverse																	
Pier 4																	
Seismic no scour	13.17	20.35	0.003658	0.05578	2.5	8.2	7.64	36	47.0	141.0	29000	202.5	1.21	10.8	3.91	0.36	1.04
Seismic with total scour 9 ft	13.17	20.35	0.003658	0.05578	2.5	8.2	16.64	36	47.0	141.0	29000	202.5	5.74	10.8	4.58	0.42	0.55
																<1	≤5

Pile Shear Longitudinal Case	Abutment Condition	Pier 4 Veq, kip	Vn kip/pile	D/C ratio	Pier 8 Veq, kip	Vn kip/pile	D/C ratio	
Seismic	Partial	8.0	40	0.2	77.6	40	1.9	high
Seismic + Scour 9ft	Partial	3.0	40	0.1	45.1	40	1.1	high
Seismic	Full Ht	5.0	40	0.1	45.1	40	1.1	Abutment retrofit reduces pile shear demands
Seismic + Scour 9ft	Full Ht	1.0	40	0.0	14.3	40	0.4	Isolation casing required
			1" deflection					

Pile Shear Transverse Case	Pier 4 Veq, kip	Vn kip/pile	D/C ratio
Seismic	15.6	40	0.4
Seismic + Scour 9ft	7.3	40	0.2

SAP Results using equivalent Pile length(DL+EQ)

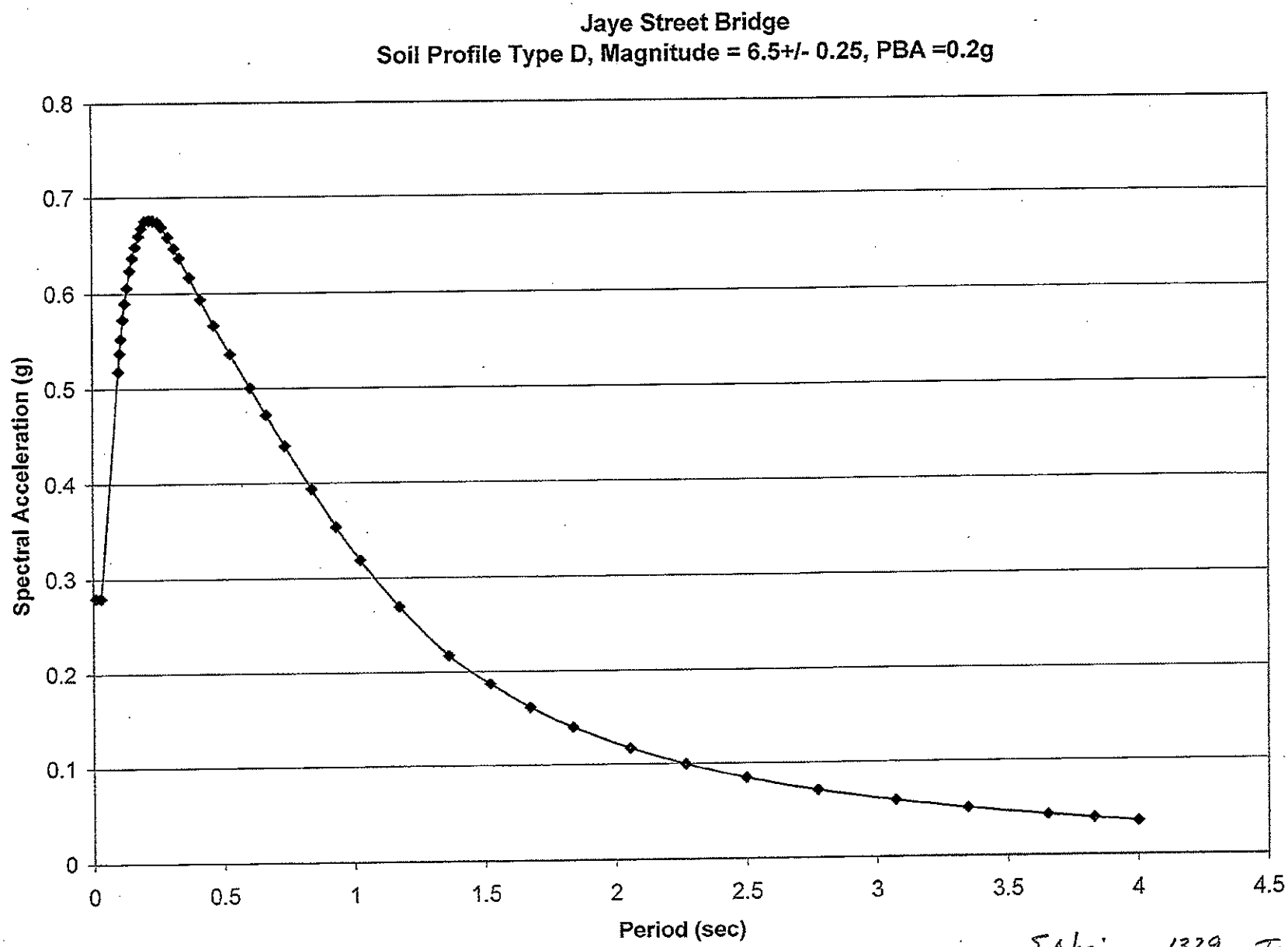
HP10x42 steel pile	Mtrans k-ft	My k-ft	D/C ratio	ΔD in
Pier 4 with no scour	54.0	141.0	0.38	2.6
Pier 4 with 9ft Scour	60.6	141.0	0.43	2.6

L-Pile Summary of Results

Case Longitudinal	Vapplied kip	Loading	Mlong k-ft	Myield k-ft	D/C Ratio	Pile Head Δ in	Allowable in	Check Lateral Stability*	Comments
Service Load with 100% Scour 12ft	0.6	HS Truck	3.7	73.1	0.05	0.28	0.25	OK	Moment OK, Deflection above allowable
Service Load with 100% Scour 18ft	0.43	HS Truck	4.8	73.1	0.07	0.46	0.25	OK	Moment OK, Deflection above allowable

Pier 4	Veq input kip		Mtran or long k-ft	Myield k-ft	D/C Ratio	Pile Head Δ in	Allowable in	Check Lateral Stability*	Comments
Seismic with no scour	15.6	Trans	68.3	141.0	0.48	1.30	1.0	OK	NG for deflection
Seismic with scour 9ft	7.3	Trans	51.7	141.0	0.37	2.20	1.0	Marginal	NG for deflection
Seismic with no scour(Partial Abut)	8.0	Long	20.8	73.1	0.28	0.72	1.0		OK
Seismic with scour 9ft(Partial Abut)	3.0	Long	15.8	73.1	0.22	1.70	1.0		NG for deflection
Seismic with no scour(Full Abut)	5.0	Long	12.5	73.1	0.17	0.40	1.0		OK
Seismic with scour 9ft(Full Abut)	1.0	Long	5.5	73.1	0.08	0.33	1.0		OK

* Lateral stability ratio used 1.5



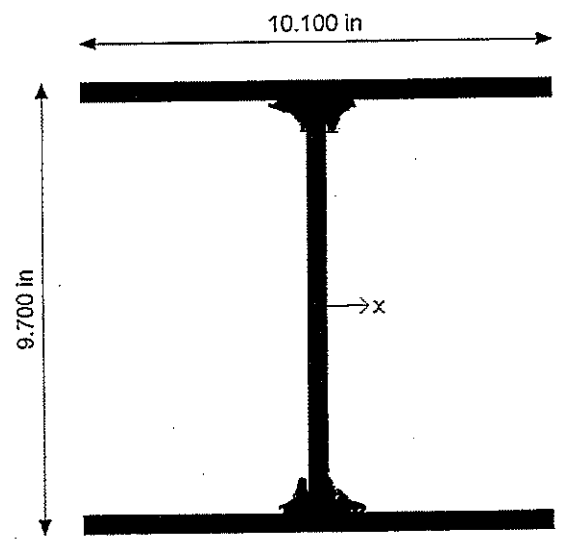
S. Nagi 1329 Jaye St. Rehab.

HP 10x42

Monday, August 11, 2008
Section Maker Version 9.52

C:\Program Files\Multiframe\SectionsLibrary.slb

Material
■ Steel



1329 Taye St

Monday, August 11, 2008
Section Maker Version 9.52

C:\Program Files\Multiframe\SectionsLibrary.slb

	Property	Value	Units
1	Mass	42.307	lb/ft
2	Gross Area	12.433	in^2
3	Ix	211.878	in^4
4	Iy	72.207	in^4
5	J	0.830	in^4
6	Zxt	43.686	in^3
7	Zxb	43.686	in^3
8	Zyl	14.298	in^3
9	Zyr	14.298	in^3
10	rx	4.128	in
11	ry	2.410	in
12	Ixc	211.878	in^4
13	Iyc	72.207	in^4
14	Ixyc	0.000	in^4
15	Sx	48.681	in^3
16	Sy	21.894	in^3
17	Iw	0.002	10^6in^6
18	Shape	I section	

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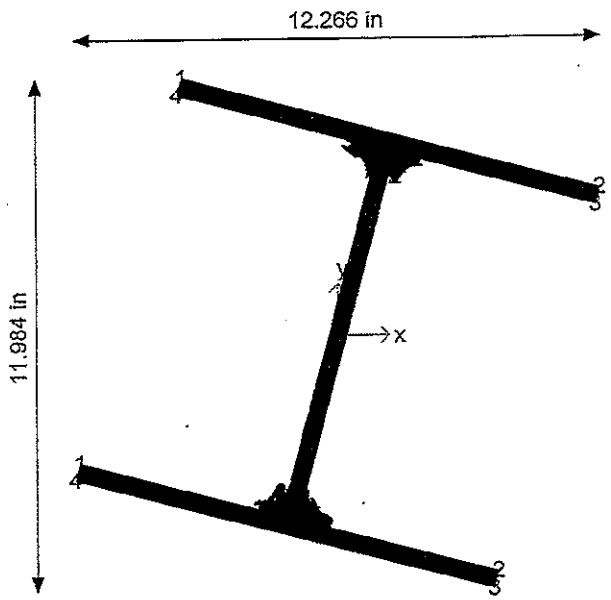
HP 10x42 (skewed 15 deg)

Monday, August 11, 2008
Section Maker Version 9.52

C:\Program Files\Multiframe\SectionsLibrary.slb

Material
■ Steel



1329 Page 5 of

Monday, August 11, 2008
Section Maker Version 9.52

C:\Program Files\Multiframe\SectionsLibrary.slb

	Property	Value	Units
1	Mass	42.307	lb/ft
2	Gross Area	12.433	in^2
3	Ix	202.522	in^4
4	Iy	81.563	in^4
5	J	0.648	in^4
6	Zxt	33.800	in^3
7	Zxb	33.800	in^3
8	Zyl	13.299	in^3
9	Zyr	13.299	in^3
10	rx	4.036	in
11	ry	2.561	in
12	Ixc	202.522	in^4
13	Iyc	81.563	in^4
14	Ixyc	34.918	in^4
15	Sx	47.023	in^3
16	Sy	24.380	in^3
17	Iw	0.000	10^6in^6
18	Shape	I section	

1329 Tuna St

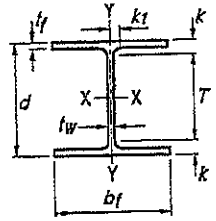


Table 1–4
HP Shapes
Dimensions

Shape	Area, A	Depth, d		Web Thickness, t_w		Web $\frac{t_w}{2}$	Flange Width, b_f		Flange Thickness, t_f		Distance k	Distance k_1	Distance T	Workable Gage
	in.^{2}	in.		in.		in.	in.		in.		in.	in.	in.	in.
HP14×117[f]	34.4	14.2	14 1/4	0.805	13/16	7/16	14.9	14 7/8	0.805	13/16	1 1/2	1 1/16	11 1/4	5 1/2
×102[f]	30.0	14.0	14	0.705	11/16	3/8	14.8	14 3/4	0.705	11/16	1 3/8	1	↓	↓
×89[f]	26.1	13.8	13 7/8	0.615	5/8	5/16	14.7	14 3/4	0.615	5/8	1 5/16	15/16	↓	↓
×73[c,f]	21.4	13.6	13 5/8	0.505	1/2	1/4	14.6	14 5/8	0.505	1/2	1 3/16	7/8	↓	↓
HP12×84	24.6	12.3	12 1/4	0.685	11/16	3/8	12.3	12 1/4	0.685	11/16	1 3/8	1	9 1/2	5 1/2
×74[f]	21.8	12.1	12 1/8	0.605	5/8	5/16	12.2	12 1/4	0.610	5/8	1 5/16	15/16	↓	↓
×63[f]	18.4	11.9	12	0.515	1/2	1/4	12.1	12 1/8	0.515	1/2	1 1/4	7/8	↓	↓
×53[f]	15.5	11.8	11 3/4	0.435	7/16	1/4	12.0	12	0.435	7/16	1 1/8	7/8	↓	↓
HP10×57[f]	16.8	9.99	10	0.565	9/16	5/16	10.2	10 1/4	0.565	9/16	1 1/4	15/16	7 1/2	5 1/2
×42[f]	12.4	9.70	9 3/4	0.415	7/16	1/4	10.1	10 1/8	0.420	7/16	1 1/8	13/16	7 1/2	5 1/2
HP8×36[f]	10.6	8.02	8	0.445	7/16	1/4	8.16	8 1/8	0.445	7/16	1 1/8	7/8	5 3/4	5 1/2

[c] Shape is slender for compression with $F_y = 50$ ksi.
[f] Shape exceeds compact limit for flexure with $F_y = 50$ ksi.

Table 1–4 (continued)
HP Shapes
Properties

HP SHAPES

Nominal Wt.	Compact Section Criteria $\frac{b_f}{2t_f}$	Compact Section Criteria $\frac{h}{t_w}$	Axis X-X I	Axis X-X S	Axis X-X r	Axis X-X Z	Axis Y-Y I	Axis Y-Y S	Axis Y-Y r	Axis Y-Y Z	r_{ts}	h_o	$\frac{J}{S_x h_o}$	Torsional Properties J	Torsional Properties C_w
lb/ft			in.^{4}	in.^{3}	in.	in.^{3}	in.^{4}	in.^{3}	in.	in.^{3}	in.	in.		in.^{4}	in.^{6}
117	9.25	14.2	1220	172	5.96	194	443	59.5	3.59	91.4	4.15	13.41	0.00348	8.02	19900
102	10.5	16.2	1050	150	5.92	169	380	51.4	3.56	78.8	4.10	13.31	0.00270	5.39	16800
89	11.9	18.5	904	131	5.88	146	326	44.3	3.53	67.7	4.05	13.22	0.00207	3.59	14200
73	14.4	22.6	729	107	5.84	118	261	35.8	3.49	54.6	4.00	13.11	0.00143	2.01	11200
84	8.97	14.2	650	106	5.14	120	213	34.6	2.94	53.2	3.41	11.60	0.00345	4.24	7140
74	10.0	16.1	569	93.8	5.11	105	186	30.4	2.92	46.6	3.38	11.52	0.00276	2.98	6160
63	11.8	18.9	472	79.1	5.06	88.3	153	25.3	2.88	38.7	3.33	11.43	0.00202	1.83	5000
53	13.8	22.3	393	66.7	5.03	74.0	127	21.1	2.86	32.2	3.29	11.35	0.00148	1.12	4080
57	9.05	13.9	294	58.8	4.18	66.5	101	19.7	2.45	30.3	2.84	9.43	0.00355	1.97	2240
42	12.0	18.9	210	43.4	4.13	48.3	71.7	14.2	2.41	21.8	2.77	9.28	0.00202	0.813	1540
36	9.16	14.2	119	29.8	3.36	33.6	40.3	9.88	1.95	15.2	2.26	7.58	0.00341	0.770	578

Result of Meeting Between Steve Ng, Amir Malek and Gudmund Setberg

Date: 4-16-08

Subject: Scour with various load combinations

Steve Ng Agreed to providing a Hydraulics Report that would provide only to key pieces of data: 1. Long-term (degradation + contraction) scour elevation and 2. Depth of short-term scour (local pier scour).

Based on this the following table is proposed:

	Scour	
Load Combination Limit State	Long-term	Short-term
Service	100 %	100 %
Strength	100 %	50 %
Extreme (seismic)	0-100 %	0-50 %

The combinations would be used to calculate pile tips and verify pile stability. The variable scour under the extreme event is thought to be covered by using just two combinations: 0 % LT scour with 0 % ST scour and 100 % LT scour with 50 % ST scour. In addition, each structure needs to be analyzed for existing conditions.

The scour Data Table in MTD 3-1 and 4-1 will be revised accordingly.

SHEET NO. ____ OF ____
PROJECT NO. 1329
DATE 8/11/08
BY S. Nagi
CHK'D ____

TRC

SUBJECT Pile Property - Concrete

Xtract Properties

$f'c = 3000$ psi

Unconfined $f'ce = 4500$ psi actual deck.

ε_{co} strain yield $= 0.002$ ✓

strain crushing $= 0.004$ say.

ε_{sp} strain spalling 0.005 ✓

$E_c = 4067$ ksi ✓

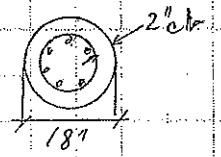
$= 33 \times 150^{1.5} \sqrt{f'ce}/1000 = 33 \times 150^{1.5} \sqrt{4500}/1000 = 4067$ ksi

Confined Core

calculate from details

$\rho_s = 0.0024$

$\rho_s = \dfrac{\text{vol of spiral}}{\text{vol of concrete}} = \dfrac{0.05 in^2 \times \pi \times (18'' - 2(2''cl) - .25'')}{\pi (18 - 2(2''))^2/4 \times 6'' = \text{spacing}}$



use out to out

$= \dfrac{2.159}{923.6} = 0.00234$ ok.

Steel Reinf ~~A706~~ A615 Grade 60

$f_y = 68$ ksi

fracture 95 ksi

strain hardening 0.008 (not given for #6 bars)

Failure strain 0.09

$E_s \approx 29{,}000 \times 10^3$ ksi

A

XTRACT Analysis Report

Imbsen & Associates, Inc. (in-house us
Imbsen & Assos.
6/12/2008
Jaye Street
Widening Project
Page __ of __

Section Name: 18"Pile
Loading Name: Run0
Analysis Type: Moment Curvature

Section Details:

X Centroid:	-.1643E-16 ft
Y Centroid:	-.8492E-17 ft
Section Area:	1.762 ft^2

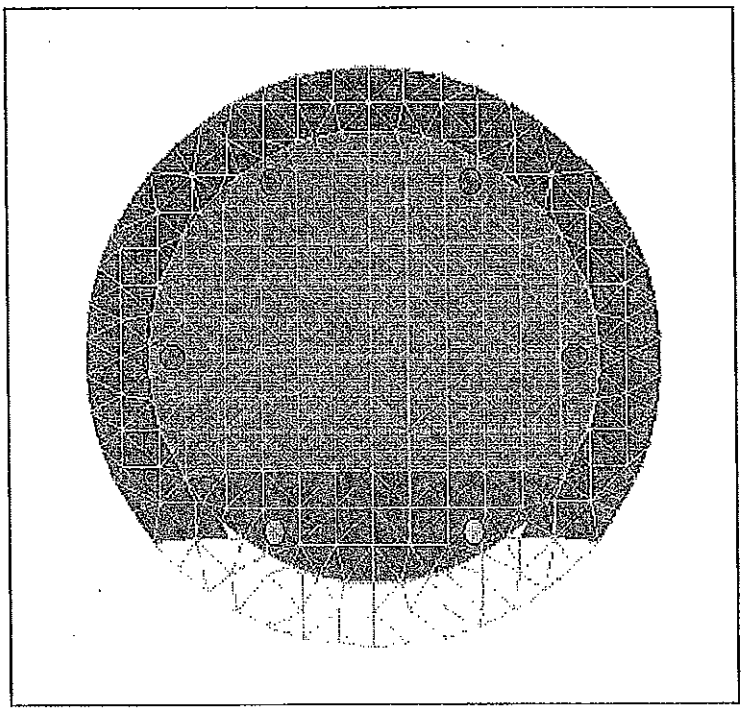
Loading Details:

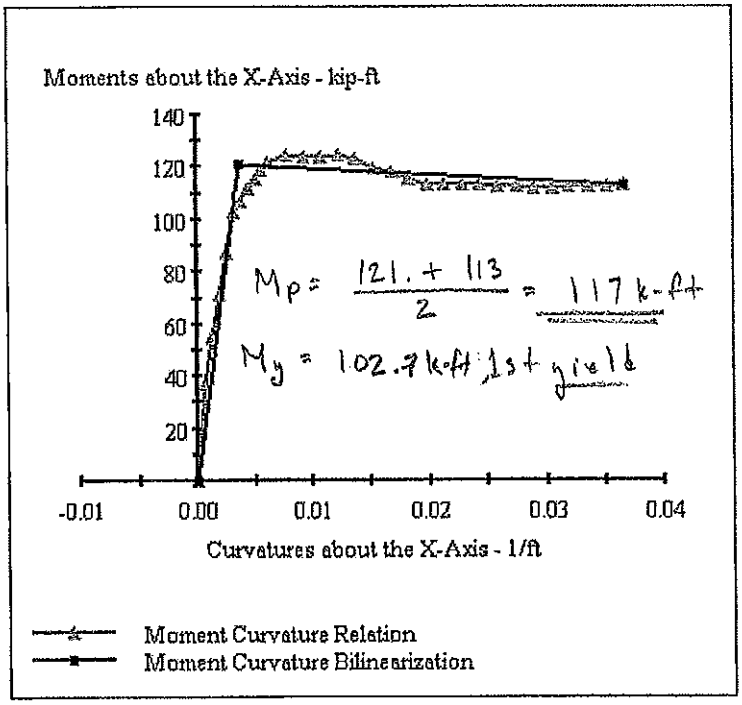
Constant Load - P:	55.00 kips
Incrementing Loads:	Mxx Only
Number of Points:	30
Analysis Strategy:	Displacement Control

Analysis Results:

Failing Material:	Confined1
Failure Strain:	8.438E-3 Compression
Curvature at Initial Load:	-.1167E-19 1/ft
Curvature at First Yield:	3.098E-3 1/ft
Ultimate Curvature:	36.55E-3 1/ft
Moment at First Yield:	102.7 kip-ft
Ultimate Moment:	113.0 kip-ft
Centroid Strain at Yield:	.9459E-3 Ten
Centroid Strain at Ultimate:	11.64E-3 Ten
N.A. at First Yield:	.3054 ft
N.A. at Ultimate:	.3184 ft
Energy per Length:	4.075 kips
Effective Yield Curvature:	3.658E-3 1/ft
Effective Yield Moment:	121.3 kip-ft
Over Strength Factor:	.9313
Plastic Rotation Capacity:	55.78E-3 rad
EI Effective:	33.16E+3 kip-ft^2
Yield EI Effective:	-253.4 kip-ft^2
Bilinear Harding Slope:	-.7642 %
Curvature Ductility:	9.991

$I_{eff} = \frac{33.16 \times 10^3 \text{ k-ft}^2 \times 144}{E_c = 4067 \frac{k}{in^2}} = 1174.1 \text{ in}^4 = 0.0566 \text{ ft}^4$



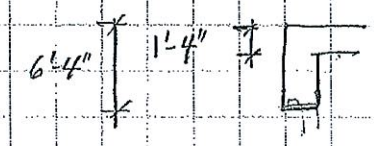


SHEET NO. _____ OF _____
PROJECT NO. 1329
DATE 7/10/08
BY S. Nagi
CHK'D _____

TRC

SUBJECT ESA

ESA - longitudinal



Diaphragm Abutments.

Assume - abutment response, SDC 7.8

$k_{abut} = k_i * w \frac{h}{5.5'}$

$w = 33.75$ unskewed

$h =$ ht of diaphragm abutment $= 6.33'$

$= 20 \frac{kip/in}{ft} \times 33.75' \times \frac{6.33'}{5.5'} = 776$ kip/in (full ht) vs 163 k/in* $\frac{1.33'}{6.33'} = 0.21$

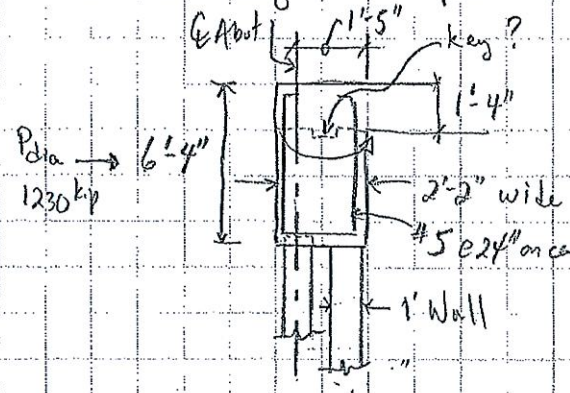
(*reduced not full soil mob.)

$P_{drag} = A_e \; 5.0 k/ft^2 \times \frac{h}{5.5}$

$A_e = 33.75' \times 6.33' = 213.6 \; ft^2$

$= 213.6 \times 5.0 \times \frac{6.33'}{5.5} = 1229$ kips max. (full ht) vs 258* kip max.

Is abut designed for passive resistance of soil? No.



DIAPHRAGM

Assume Cantilever:

$M_u = 1230^k \times \left(\frac{6.33}{2} - 1.33'\right) = 2257$ k-ft (over 33.75) $= 66.9$ k-ft/ft

$M_n = A_s f_y d$

$= \frac{0.31 in^2}{2 ft} \times 60 ksi \times (26" - 2\frac{1}{2}")/12$

$= 18.2$ k-ft/ft NG.

- Need to include pile pinned, in weak direction but no pinned detail at top of BP10x42#.

A

ESA longitudinal analysis(exist cond with scour)

Longitudinal direction assume piles are fixed at top & bottom

Locations		A1	P2	P3	P4	P5	P6	P7	P8	A9		
No. of piles		4	5	5	5	5	5	5	5	4		
Pile Diameter	ft		1.5	1.5	1.5	1.5	1.5	1.5	1.5			
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	14.8	11.6	8	3.2		Christenson Report	
Seismic Analysis(0%LT+0%ST)											represent exist condition of bridge with exist scour, BDA	
Lequiv =Lclr + 6 Pile Ø	ft		20.5	20.5	20.8	19.8	16.6	13	8.2		piles (Compact) Sand 2' diameter	
Ht of Conc Pile			13.17	13.17	13.17	13.17	13.17	13.00	8.20			
Ht of Steel pile			7.34	7.34	7.64	6.64	3.44	n/a	n/a			
Igross Concrete	ft4		0.249	0.249	0.249	0.249	0.249	0.249	0.075		Use I gross if piles remain elastic, or Icr	
I gross Steel long weak/skewed	ft4		0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039			
Ece	ksi		4067	4067	4067	4067	4067	4067	4067			
Es	ksi		29000	29000	29000	29000	29000	29000	29000			
Top Condition- fixed												
kconc pile	k/in	163	79.73	79.73	79.73	79.73	79.73	82.80	395.92	163	=3EI/L^3 or 12EI/L^3 K abut	163 kip/in
ksteel pile	k/in		52.1	52.1	46.2	70.3	506.8	1000.0	1000.0		=3EI/L^3 776 or 163	
kpiles and/or kabut		163	31.49	31.49	29.23	37.37	68.89	76.47	283.63	163	in parallel, 1/kt = 1/ki + 1/kj	
Total Long stiffness(from graph)	k/in	7100	equivalent	722							P dia	
Mass Superstructure	kips	1832			24.7						1229 or 258 kips	
Period=0.32SQRT(m/k)	s	0.51			actual P4Pile							
ARS Curve 0.2g curve	g	0.53										
Feq	kip	971										
Long Disp, ΔD	in	1.37	OK									
Dist Feq		223	43	43	40	51	94	105	388	SUM	987	matches Feq within 5%
									high shear failure			
									Need isolation casing			

Partial Ht of Abut

ESA longitudinal analysis Case 100%LT Scour

Locations		A1	P2	P3	P4	P5	P6	P7	P8	A9		
No. of piles		4	5	5	5	5	5	5	5	4		
Pile Diameter	ft		1.5	1.5	1.5	1.5	1.5	1.5	1.5			
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	14.8	11.6	8	3.2		Christenson Report	
Seismic & Strength												
Analysis(100%LT+50%ST)	ft		29.5	29.5	29.8	28.8	25.6	22.0	17.2			
Ht of Conc Pile			13.17	13.17	13.17	13.17	13.17	13.17	13.17			
Ht of Steel pile			16.34	16.34	16.64	15.64	12.44	8.84	4.04			
Igross Concrete	ft4		0.249	0.249	0.249	0.249	0.249	0.249	0.249		Use I gross as pile remain elastic	
I gross Steel long direction weak	ft4		0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039			
Ece	ksi		4067	4067	4067	4067	4067	4067	4067			
Es	ksi		29000	29000	29000	29000	29000	29000	29000			
Top Condition- fixed												
kconc pile	k/in	163	79.73	79.73	79.73	79.73	79.73	79.73	79.73	163	=3EI/L^3 or 12EI/L^3	
ksteel pile	k/in		4.7	4.7	4.5	5.4	10.7	29.8	312.7		=3EI/L^3	
kpiles and/or kabut		163	4.45	4.45	4.23	5.04	9.42	21.68	63.53	163	in parallel, 1/kt = 1/ki + 1/kj	
Total Long stiffness(from graph)	k/in	165.0	equivalent	276								
Mass Superstructure	kips	1832			6.6			19.1			check stiffness	
Period=0.32SQRT(m/k)	s	1.07			actualP4Pile SAP			actual P7Pile				
ARS Curve 0.2g curve	g	0.32										
Feq	kip	586										
Long Disp, ΔD	in	3.55										
Dist Feq		163	16	16	15	18	33	77	226	SUM	564	matches Feq within 5%
									OK			

ESA longitudinal analysis(exist cond with scour) Longitudinal direction assume piles are fixed at top & bottom

Locations		A1	P2	P3	P4	P5	P6	P7	P8	A9		
No. of piles		4	5	5	5	5	5	5	5	4		
Pile Diameter	ft		1.5	1.5	1.5	1.5	1.5	1.5	1.5			
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	14.8	11.6	8	3.2		Christenson Report	
Seismic Analysis(0%LT+0%ST) Lequiv =Lclr + 6 Pile Ø	ft		20.5	20.5	20.8	19.8	16.6	13	8.2		represent exist condition of bridge with exist scour, BDA piles (Compact) Sand 2' diameter	
Ht of Conc Pile			13.17	13.17	13.17	13.17	13.17	13.00	8.20			
Ht of Steel pile			7.34	7.34	7.64	6.64	3.44	n/a	n/a			
Igross Concrete	ft4		0.249	0.249	0.249	0.249	0.249	0.249	0.075		Use I gross if piles remain elastic, or Icr	
I gross Steel long weak/skewed	ft4		0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039			
Ece	ksi		4067	4067	4067	4067	4067	4067	4067			
Es	ksi		29000	29000	29000	29000	29000	29000	29000			
Top Condition- fixed												
kconc pile	k/in	776	79.73	79.73	79.73	79.73	79.73	82.80	395.92	776	=3EI/L^3 or 12EI/L^3	K abut 776 kip/in
ksteel pile	k/in		52.1	52.1	46.2	70.3	506.8	1000.0	1000.0		=3EI/L^3	776 or 163
kpiles and/or kabut		776	31.49	31.49	29.23	37.37	68.89	76.47	283.63	776	in parallel, 1/kt = 1/ki + 1/kj	
Total Long stiffness(from graph)	k/in	1340.0	equivalent	1335								P dia 1229 or 258 kips
Mass Superstructure	kips	1832			24.7							
Period=0.32SQRT(m/k)	s	0.37			actual P4Pile							
ARS Curve 0.2g curve	g	0.62										
Feq	kip	1136										
Long Disp, ΔD	in	0.85	OK									
Dist Feq		658	27	27	25	32	58	65	240 high shear failure Need isolation casing	SUM	1131	matches Feq within 5%

Full ht of Abut

ESA longitudinal analysis Case 100%LT Scour

Locations		A1	P2	P3	P4	P5	P6	P7	P8	A9		
No. of piles		4	5	5	5	5	5	5	5	4		
Pile Diameter	ft		1.5	1.5	1.5	1.5	1.5	1.5	1.5			
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	14.8	11.6	8	3.2		Christenson Report	
Seismic & Strength Analysis(100%LT+50%ST)	ft		29.5	29.5	29.8	28.8	25.6	22.0	17.2			
Ht of Conc Pile			13.17	13.17	13.17	13.17	13.17	13.17	13.17			
Ht of Steel pile			16.34	16.34	16.64	15.64	12.44	8.84	4.04			
Igross Concrete	ft4		0.249	0.249	0.249	0.249	0.249	0.249	0.249		Use I gross as pile remain elastic	
I gross Steel long direction weak	ft4		0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039			
Ece	ksi		4067	4067	4067	4067	4067	4067	4067			
Es	ksi		29000	29000	29000	29000	29000	29000	29000			
Top Condition- fixed												
kconc pile	k/in	776	79.73	79.73	79.73	79.73	79.73	79.73	79.73	776	=3EI/L^3 or 12EI/L^3	
ksteel pile	k/in		4.7	4.7	4.5	5.4	10.7	29.8	312.7		=3EI/L^3	
kpiles and/or kabut		776	4.45	4.45	4.23	5.04	9.42	21.68	63.53	776	in parallel, 1/kt = 1/ki + 1/kj	
Total Long stiffness(from graph)	k/in	860.0	equivalent	889								
Mass Superstructure	kips	1832			6.6			19.1			check stiffness	
Period=0.32SQRT(m/k)	s	0.47			actualP4Pile SAP			actual P7Pile				
ARS Curve 0.2g curve	g	0.53										
Feq	kip	971										
Long Disp, ΔD	in	1.13										
Dist Feq		876	5	5	5	6	11	24	72 OK	SUM	1004	matches Feq within 5%

ESA transverse - considering 2 sections of pile and Pier 4(No Scour)

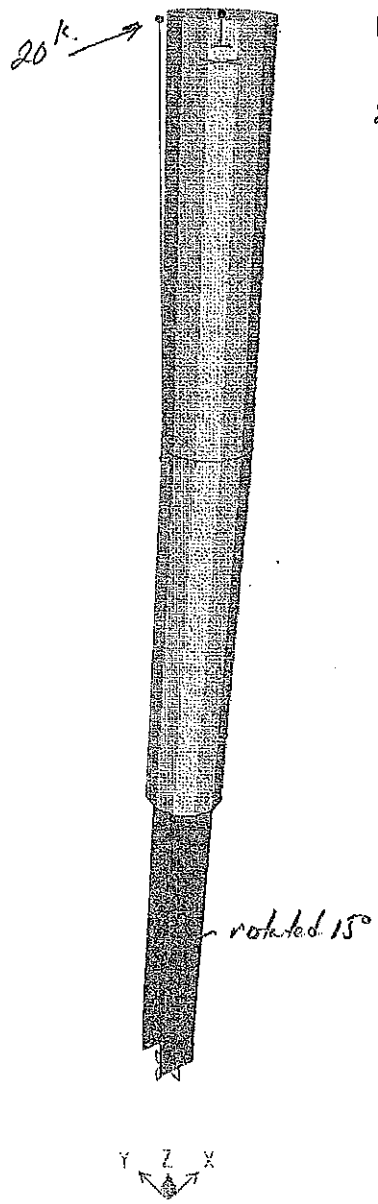
		Properties	
	I trans steel	0.00977	ft4
	I trans conc	0.249	ft4

Locations		A1	P2	P3	P4	
No. of piles		4	5	5	5	
Pile Diameter	ft		1.5	1.5	1.5	
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	
Seismic Analysis(0%LT+0%ST) Lequiv =Lclr + 6 Pile Ø	ft		20.5	20.5	20.8	
Ht of Conc Pile			13.17	13.17	13.17	
Ht of Steel pile			7.34	7.34	7.64	
Igross Concrete	ft4		0.075	0.075	0.075	
I gross Steel long strong/skewed	ft4		0.0098	0.0098	0.0098	
Ece	ksi		4067	4067	4067	
Es	ksi		29000	29000	29000	
Top Condition- fixed						
kconc pile	k/in		23.92	23.92	23.92	
ksteel pile	k/in		129.2	129.2	114.5	
kpiles and/or kabut			20.18	20.18	19.79	
Total Trans stiffness(from graph)	k/in	20.0	P4 equivalent			
Mass Superstructure	kips	244				
Period=0.32SQRT(m/k)	s	1.12				
ARS Curve 0.2g curve	g	0.32				
Feq	kip	78			15.6	kip/pile
Trans Disp, ΔD	in	3.91	OK			
Dist Feq	kip				77	matches

ESA transverse - considering 2 sections of pile and Pier 4(with Scour)

		Properties	
	I trans steel	0.00977	ft4
	I trans conc	0.249	ft4

Locations		A1	P2	P3	P4	
No. of piles		4	5	5	5	
Pile Diameter	ft		1.5	1.5	1.5	
Avg soffit to Grade ht, Lclr	ft		15.5	15.5	15.8	
Seismic & Strength Analysis(100%LT+50%ST)	ft		29.5	29.5	29.8	
Ht of Conc Pile			13.17	13.17	13.17	
Ht of Steel pile			16.34	16.34	16.64	
Igross Concrete	ft4		0.075	0.075	0.075	
I gross Steel long strong/skewed	ft4		0.0098	0.0098	0.0098	
Ece	ksi		4067	4067	4067	
Es	ksi		29000	29000	29000	
Top Condition- fixed						
kconc pile	k/in		23.92	23.92	23.92	
ksteel pile	k/in		11.7	11.7	11.1	
kpiles and/or kabut			7.85	7.85	7.57	
Total Trans stiffness(from graph)	k/in	8.00	P4 equivalent			
Mass Superstructure	kips	244				
Period=0.32SQRT(m/k)	s	1.77	longer period			
ARS Curve 0.2g curve	g	0.15				
Feq	kip	37			7.3	kip/pile
Trans Disp, ΔD	in	4.58	OK	pile elastic more flexible at this length		
Dist Feq	kip				35	matches

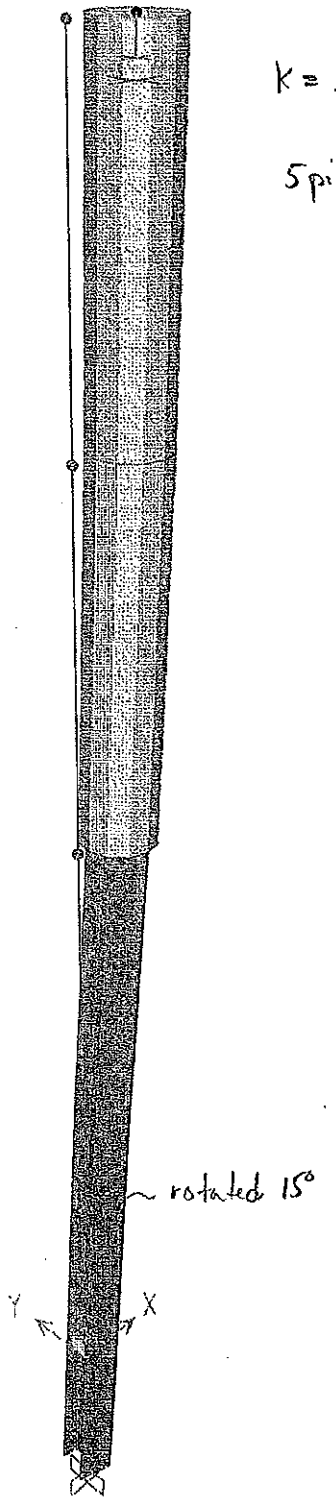


$k = \frac{20^k}{4.06''} = 4.93$ k/in

5 piles $= 24.7$ k/in

Pier 4 pile

stiffness check



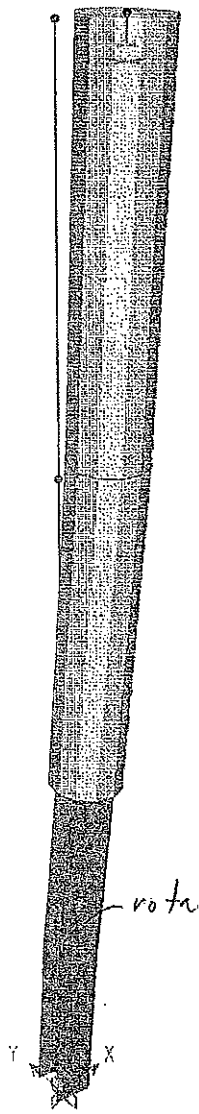
$K = \frac{20^k}{14.26''} = 1.4\ k/in$

5 piles = 7.0 k/in

Pier 4 pile stiffness check

$K = \frac{20^k}{5.24''} = 3.82\ k/in$

5 piles = 19.1 k/in



Pier 7 Pile stiffness check

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TRC

SUBJECT Seismic Retrofit

- check shear (abut)

$\phi V_n = \phi(V_c + \cancel{V_s})$ → 0 say $\phi = .90$ $V_c = 2\sqrt{f'_c} \times b_w x d$

$= \phi(V_c)$ $= 2\sqrt{4500} \times 33.75 \times \frac{2' \times 144 / 1000}{\cos 15°} = 1350$ kip

$= 0.9(1350)$ > 1230 kip good

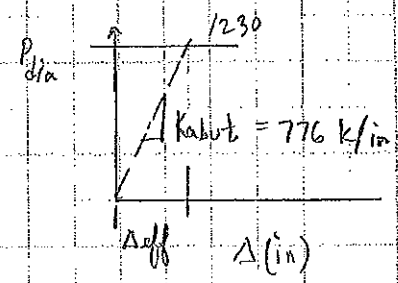
$= 1215^k \approx P_{dia}$ in shear

1230^k $V_s = \frac{A_s \; f_y \times d}{s}$ no stirrups, in abut diaphragm

$< F_{eq}$ at abut.

- Diaphragm will not shear off.

- the diaphragm needs to be retrofitted to include full abut response from soil, ie add bars from top.

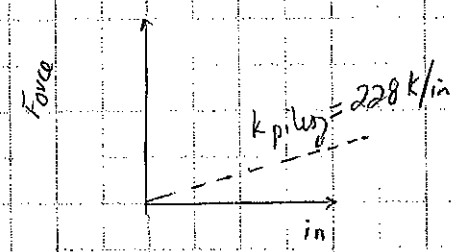


$\Delta_{eff} = \frac{1230^k}{776 k/in} = 1.58''$

$\Delta_D = 1.15'' \ll \Delta_c$ when $K_{abut} = 776$ k/in

+ (add)

$\max \Delta_D^{long} = 2.59''$ OK. when $K_{abut} = 163$ k/in

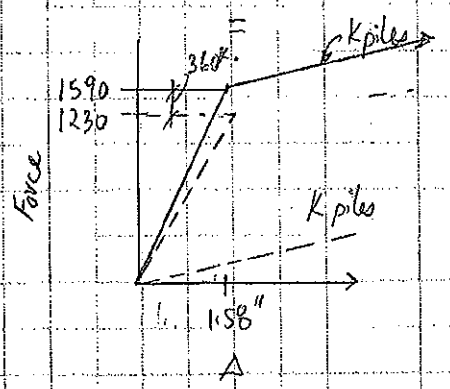


Steel Pile in long direction

$\Delta_{yp} = \frac{M_{xx} L^2}{2 E I_{yy}} = \frac{33.9 k\text{-}ft \times (13.5)^2 \times 12 \times 144}{2 \; 29000 ksi \times 45.0 in^4}$ yielded fully

$= 4.09''$ $M_{xx} = F_y S = 36 ksi \; 11.3 in^3/12$

yielding $> = 33.9$ k-ft



if $M_o = M_{plt} = 55.5$ k-ft plastic limit

$\Delta_c = 6.70''$ ie $\Delta_p = 6.7 - 4.09 = 2.6''$

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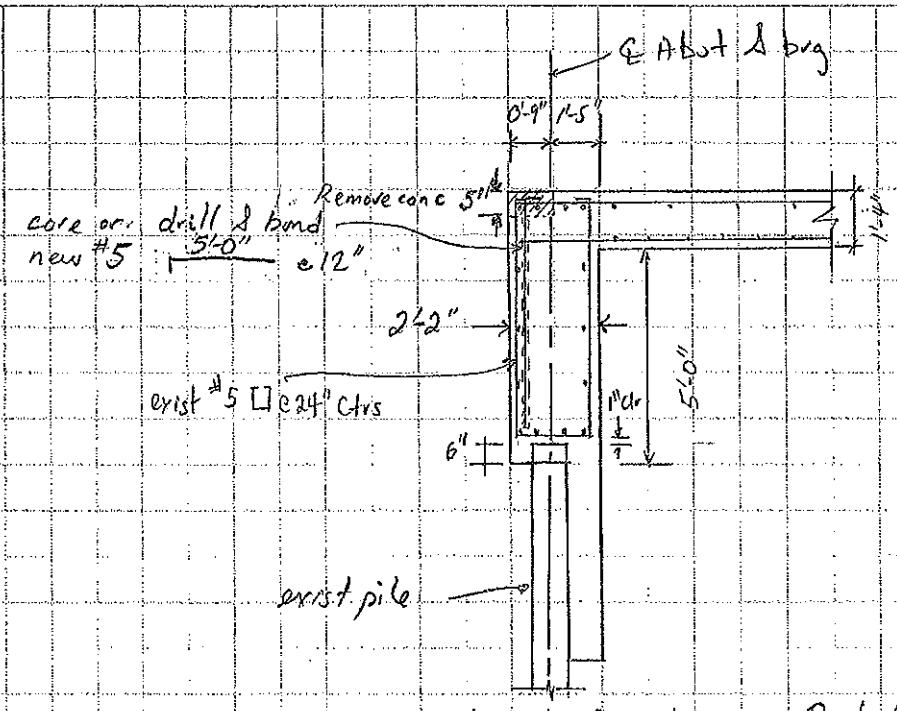
SUBJECT Seismic Retrofit - Abut



Abutment - Diaphragm Retrofit (normal section)

A

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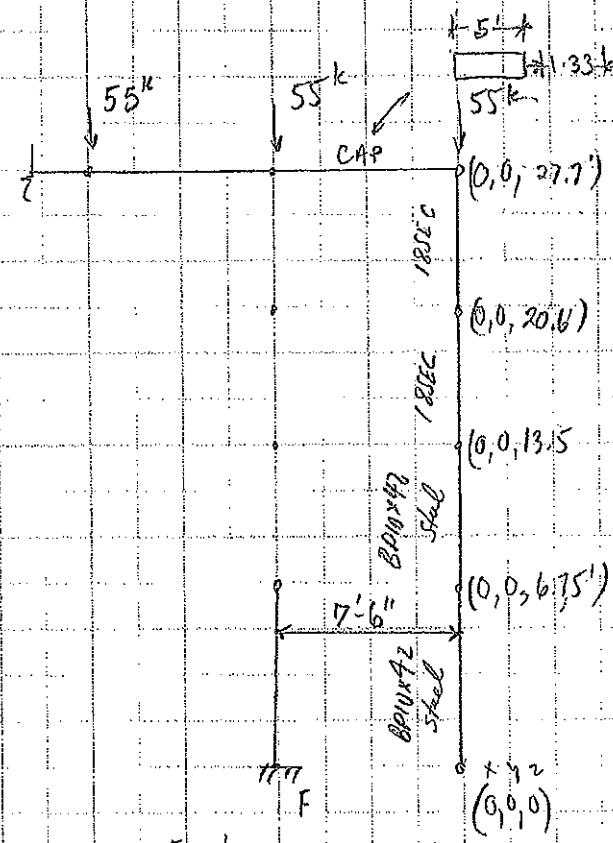
SUBJECT SAP Bent Model

Global	X	long
	Y	trans
	Z	vert
Local	R	U1
	W	U2
	B	U3

SAP MODEL NOTES

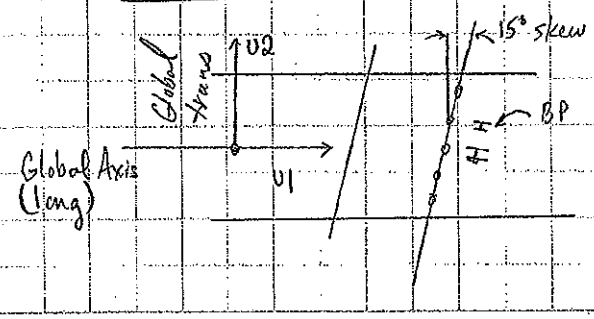
DL on pile = 54 k. -g.

ARS - used spectra from file m6d2.ars.txt (may not be exact), concur with Seisab

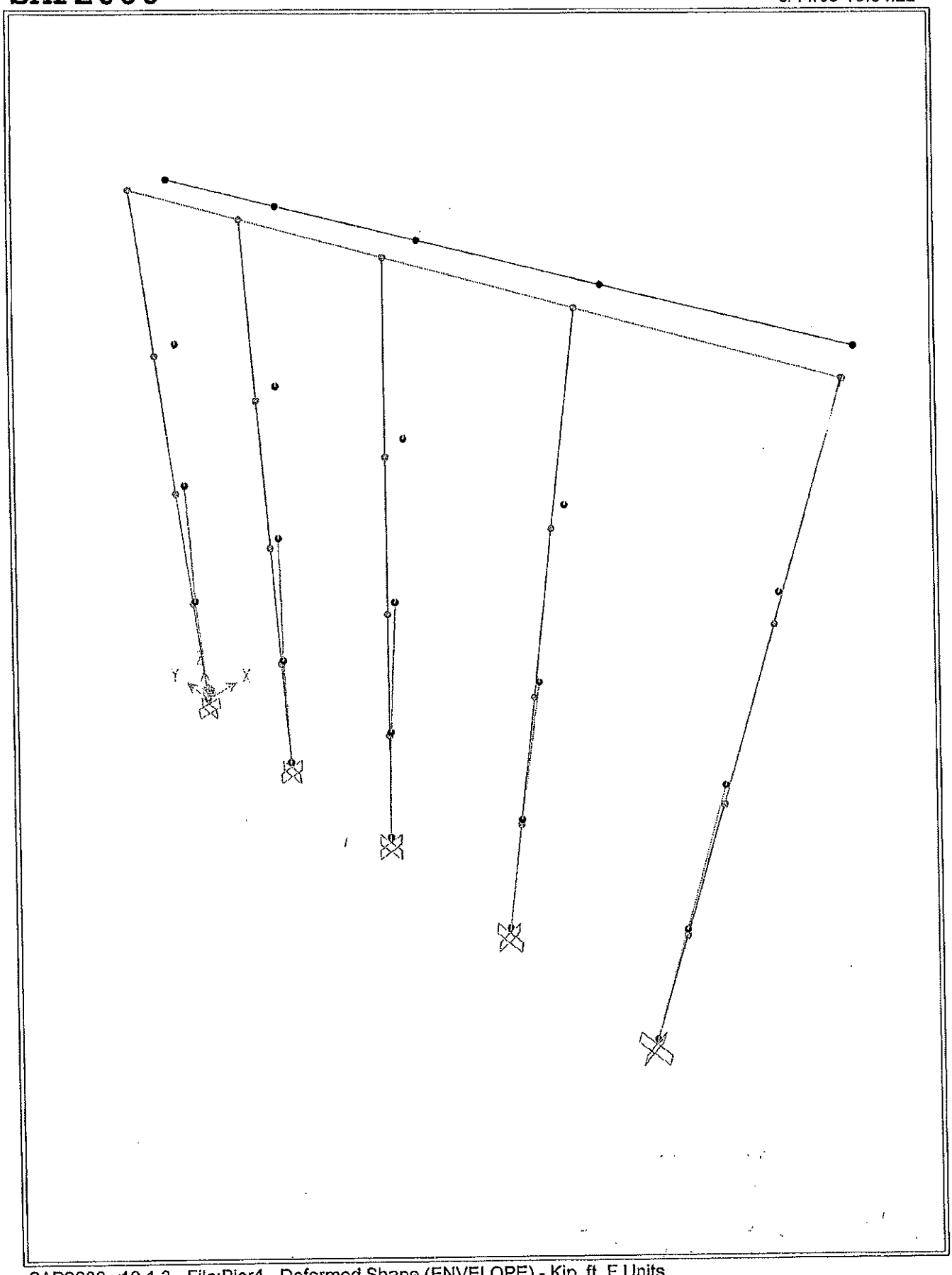


5 piles @ 7'-6" along skew

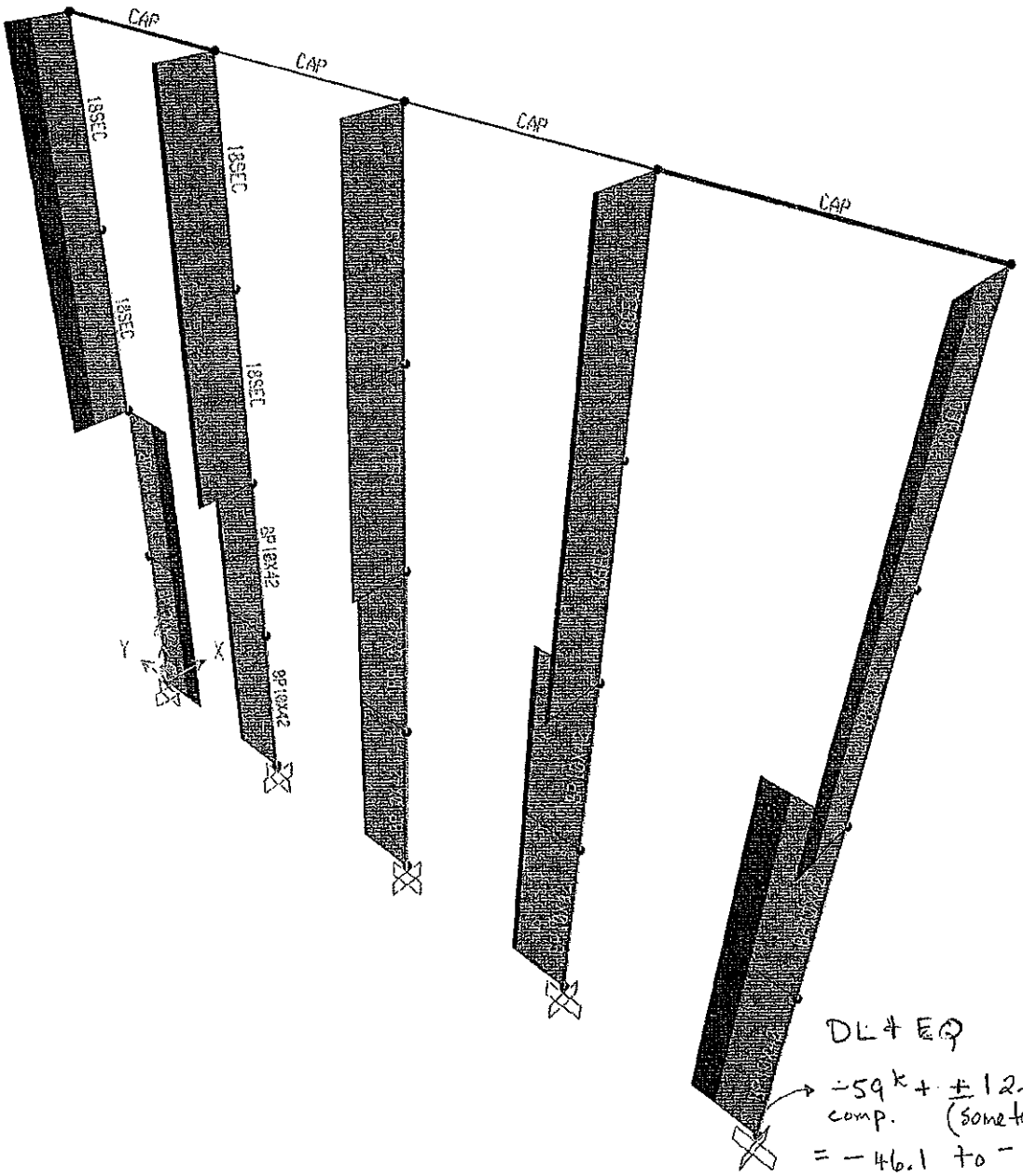
Pier 4 SAP Model



A



SAP2000 v10.1.3 - File:Pier4 - Deformed Shape (ENVELOPE) - Kip, ft, F Units



DL + EQ

-59^k + $\pm 12.9^k$
comp. (some tension)
$= -46.1$ to -71.9^k

As-built on plans: Pile service load = 45 ton piles
= 90 kip service load

< 90 kip x 2 ultimate
< 180 k. good.

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SUBJECT Seismic Guidelines

from Site Seismicity guidelines for exist'g temp. bridge — letter dated 01/24/02

MTD 9-3 when widening a bridge, the exist. structure be evaluated & upgraded if necessary to meet current seismic retrofit std & performance goals

list seismic vulnerabilities

↓

Strategy Mtg

↓

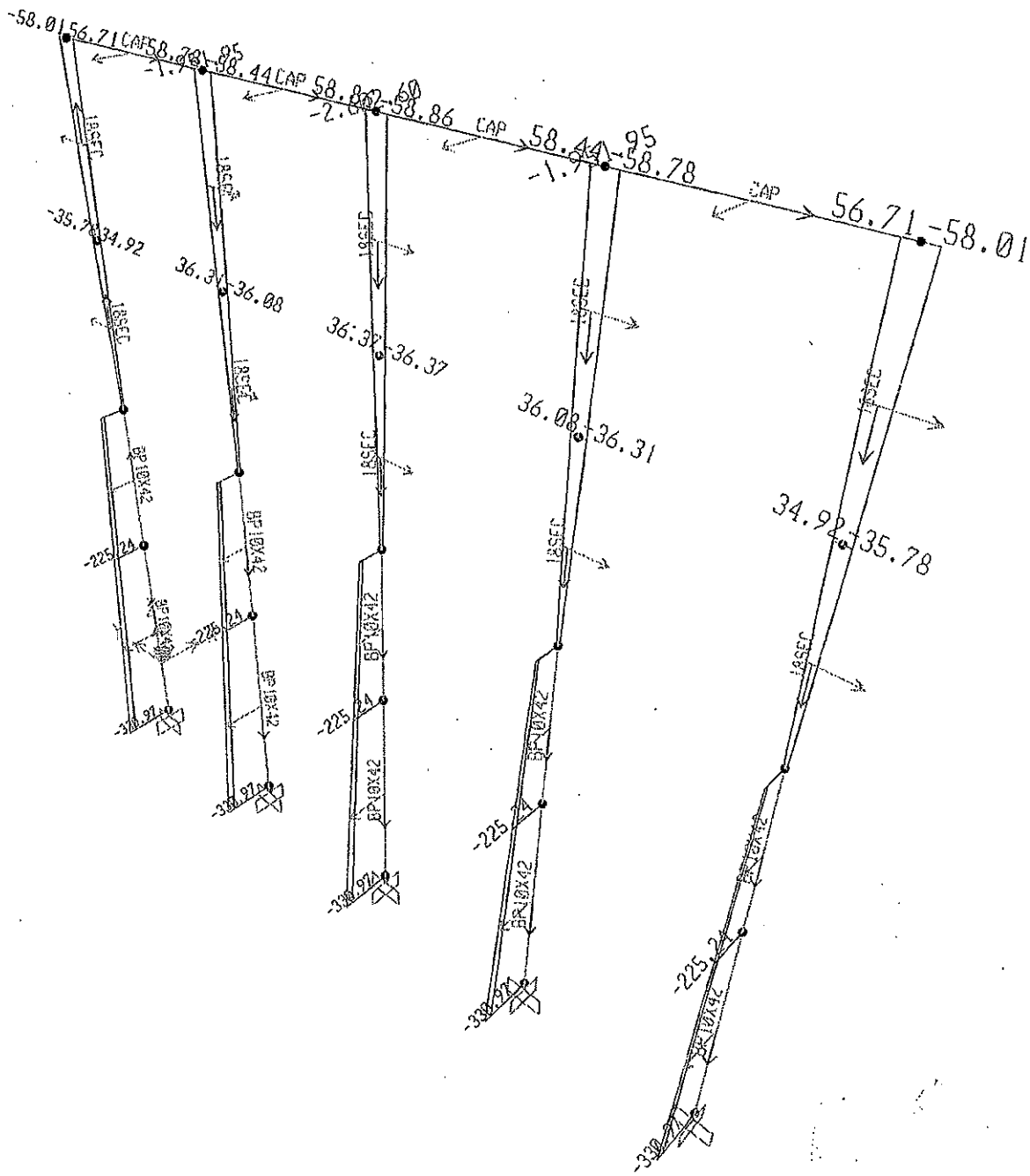
what is retrofit req'd?

- must meet Caltrans - No collapse seismic retrofit & performance criteria

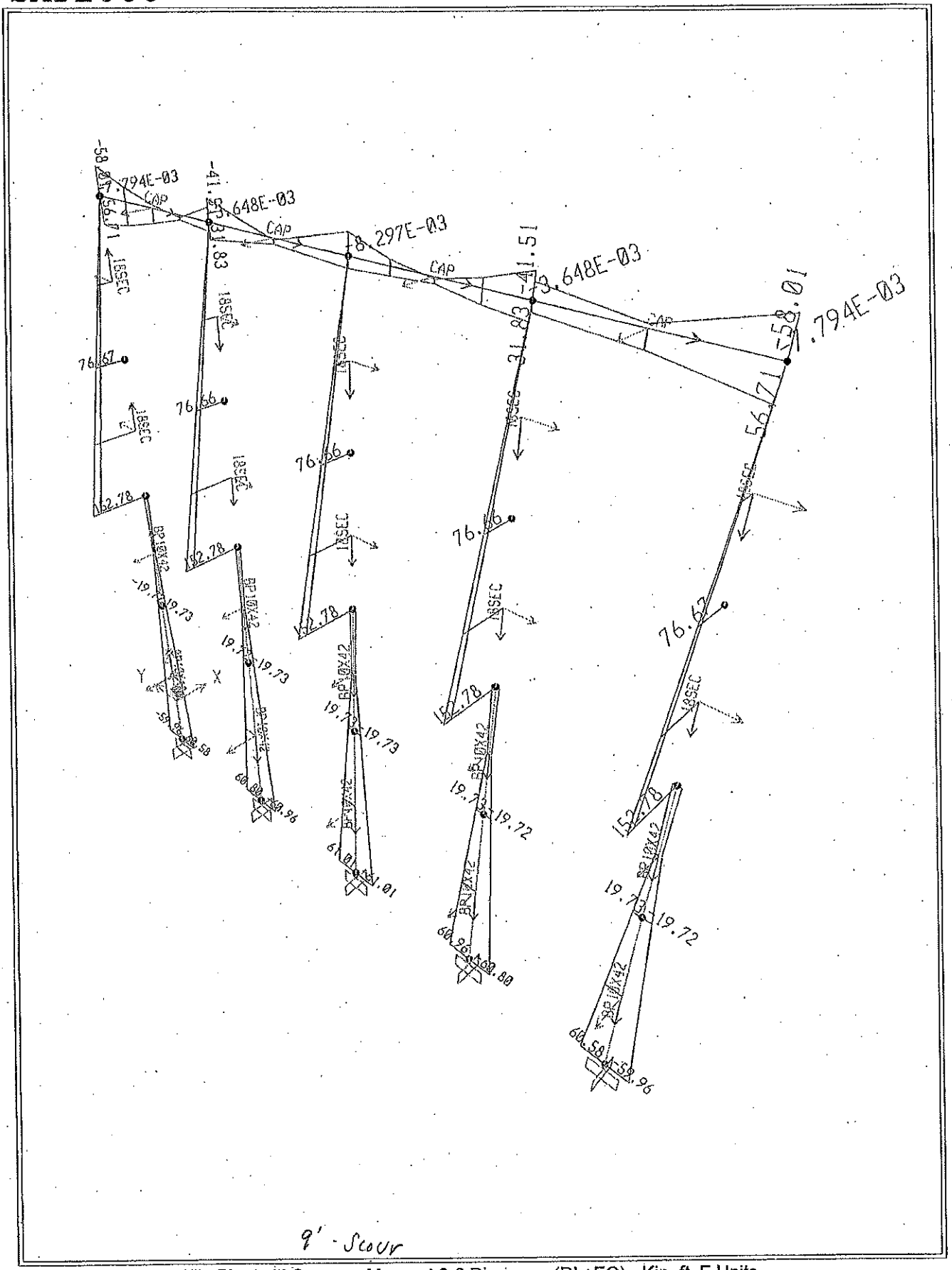
References:
BDA 14-1 Modeling Seismic Stiffness
BDP 8-13 Force-displ. curves.

- ARS
- "Pile extension" must meet ductility req't $\Delta D < \Delta C$ SDC 7.7.4
like column elements

A


-58.01
56.71
CAP
58.78
-58.44
CAP
58.86
-58.86
CAP
58.44
-58.78
CAP
56.71
-58.01
18SEC
-35.78
34.92
36.31
-36.08
36.32
-36.37
36.08
-36.31
34.92
-35.78
BP10X42
-225.24
-330.97

9'-Scour



SAP2000 v10.1.3 - File:Pier4withScour - Moment 3-3 Diagram (DL+EQ) - Kip, ft, F Units

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Ductility Δ_D trans $= 2.10''$ Per 4 SAP

conc pile:

$$\Delta_y^{col} = \frac{L^2}{3} \times \phi_y = \frac{(14.2'ft)^2}{3} \times 3.658\times10^{-3}/ft \times 12 = 2.95''$$

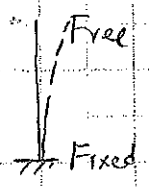
$$\Delta_p = \theta_p \times \left(L - \frac{L_p}{2}\right) \qquad L_p = 20.35 in \text{ xtract}$$

$$= 55.78\times10^{-3} \times \left(14.2'\times12 - \frac{20.35''}{2}\right) = 8.9''$$

$$\therefore \Delta_c = \Delta_y + \Delta_p = 2.95'' + 8.9'' = 11.9'' \gg \Delta_D \quad \text{good}$$

– doesn't include steel pile. Double curvature.

Steel Pile $L = 13.5'$ $F_y = 36\,000$ ksi $F_{ult} = 50$ ksi say compact section



use M_y

$$\Delta_{y\,max} = \frac{M_o L^2}{2EI_{xx}} = \frac{126\,k\text{-}ft \times 12 \times 13.5'^2}{2 \cdot 29000\,ksi \times 209\,in^4} \quad \text{yielded fully.}$$

$$= 3.27'' \quad \text{yield displ.}$$

$$M_y = F_y S_{xx} = 36\,ksi \times 42.1\,in^3/12 = 126.3\,k\text{-}ft$$

If $M_o = M_{ult} = 150$ k-ft $\Delta_c = 3.9''$

$\therefore$ plastic displacement $= 3.9'' - 3.27'' = 0.62''$

$$\Delta_c = 3.9'' = \Delta_y + \Delta_p = 3.27'' + 0.62'' \quad \text{done.}$$

Ductility Capacity

conc $\mu_{c1} = \dfrac{\Delta_{c1}}{\Delta_{Yield}} = \dfrac{11.9''}{2.95''} = 4.0 > 3.0$ min for ductile members. good

steel $\mu_{c2} = \dfrac{\Delta_{c2}}{\Delta_{Yield}} = \dfrac{3.9''}{3.27} = 1.20 < 3.0$ min but we don't anticipate ductility needed., pile remain elastic.

trans. $\Delta_D = 2.10'' \ll \Delta_y$

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Diaphragm Abut - check F bars. BDA 1-2.
- for 45 Ton piles → $\boxed{15 \text{ kip/pile}}$ (lateral resistance)
Steel pile

pile spacing $10' \times \cos 15° = 9.66'$

∴ Lateral force kip/LF $= \dfrac{15 \text{ kips/pile} \times 4 \text{ piles}}{33.75'} = 1.78$ k/LF

$A = 6'\text{-}4'' - 1'\text{-}4'' = 5.0'$

- table says: you need #5 @ 18", plans have #5 @ 24" N.G.

- this is minimum lateral design force @ service level @ base of diaphragm abutment.

Diaphragm Abut transverse response

diaphragm Abuts: 40 k/in per pile ✓ on std piles SDC 7.8.2

neglecting wingwalls → $K_{dia} = 4 \text{ piles} * 40 \text{ k/in} = 160$ k/in

total DL @ Abut $= (\overset{\text{superst}}{29.9} + \overset{\text{abut}}{30 + 6})$ 4 piles $= 236$ kips abut mass lumped
rxn

$T = 0.32\sqrt{\dfrac{236 \text{ kip}}{160 \text{ k/in}}} = 0.39$ sec ARS → 0.60

$F_{eq} = 0.60 \times 236 = 142$ kips

Δ_D local trans (abut) $= \dfrac{142 \text{ kips}}{160 \text{ k/in}} = 0.89''$ good

A

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TRC

SUBJECT Bent Cap. - Check Flexural Steel

Bent Cap should remain elastic

Design flexural steel for 1.2 M_p of Conc pile = 1.2 (117 k-ft)
= 140 kip-ft

Group VII

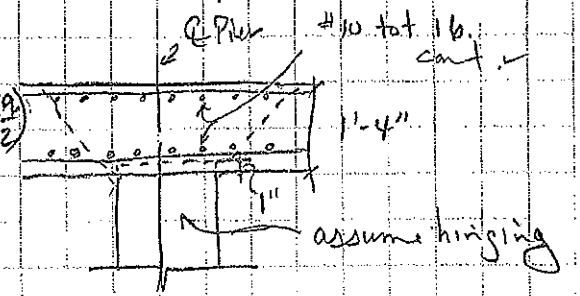
$\phi = 0.90$ flexure

$M_n = 0.90 \; f_y A_s d$

$= 0.9 \; 60\,ksi \, (8 \times 1.27\,in^2)(16'' - 2 - 1.63 - \frac{1}{2} - \frac{9}{2})$

$= 5634$ k-in

$= 470$ k-ft very good



add DL Moments

$M_n = M_{DL+ADL} + M_{EQ}$

$= 42.1 + 140$

$= 182$ k-ft $< M_n$
< 470 k-ft
OK

total DL+ADL = 244 kip length = 33.75/cos15°
= 35.0

w = 7.0 k/ft

$-M_{DL} = -.107 \, w l^2$ $l = 7.5'$

$= -.107 (7.0\,k/ft) \times 7.5\,ft^2$

$= 42.1$ k-ft.

$a = \frac{A_s f_y}{0.85 f'_c b} = \frac{1.27 \times 8 \times 60\,ksi}{0.85 \; 4.5 \times 4' \times 12}$

$= 3.3\,in$

$b = 1.33' + 2(1.33) = 4.0'$ say
all bar within this zone
(45°)

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SUBJECT Pile Shear

Shear Capacity - since it is not ductile concrete member (read SDC 3-11)

($\phi V_n \geq V_o$) it would have to meet V_o associated with overstrength shear

so $V_n = V_c + V_s$ as normal, $\phi = 0.85$ shear

$\phi V_n = 0.85(28+16)$
$= 37.4$ kips

$V_c = 2\sqrt{f'_c}\, b_w d$ (area)
$= 2\sqrt{3000}\ \pi\, 18''^2/4 = 27.9$ kips

$V_s = \frac{A_v f_y d}{s} = \frac{0.05 in^2 \times 2 \times 60\ ksi \times (18-2-.25/2)}{6''} = 16$ kips

$A_v = 0.05 \times 2$ spiral #5 Wire @ 6"

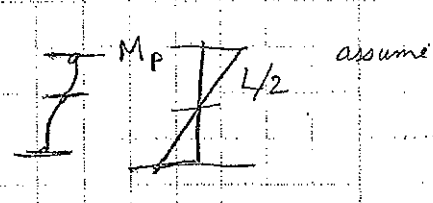
trans: $V_u = \pm 4.5$ kips low. DL+EQ SAP model < 37.4 kip Good

long: $V_{eq} = \frac{151\ k/in \times 24.0''}{5 \text{ piles in Bent}} = 60$ kips → make Pier 8 high! > V_n, shears off at slab/col interface & slab will fail.

existing Lclr + 5 ϕ dia

Pier 8 $V_o = \frac{1.2\ M_p}{L/2} = \frac{1.2\ 117\ k\text{-}ft}{L_{eq} = 10.7'/2} = 26.2$ kips max - most transmitted

Lclr 3.2' + 5×ϕ 1.5' = 10.7'



assume

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SUBJECT Pile shear.

SDC 3.6.6 V_n

Factor 1 $= 0.3 \le \frac{\rho_s f_{yh}}{0.150} + 3.67 + \mu_d < 3$

$= \frac{0.00243 \; 60ksi}{0.150} + 3.67 + 0.9$

$= 3$ $\quad 5.54 < 3$ use

Factor 2 $= 1 + \frac{P_c \times 1000}{2000 \; A_g} < 1.5$

$= 1 + \frac{49 \times 1000}{2000 \times \pi 18^2/4}$

$= 1.10 < 1.5$

$V_c = v_c \times 0.8 \times A_g = 182^{psi} \times 0.8 \times 255 in^2 / 1000$
$= 37.1$ kips

$v_c = 3 \times 1.10 \times \sqrt{3000} \le 4\sqrt{3000}$
$= 182$ psi (inside plastic hinge)

$V_s = \frac{A_v f_{yh} D'}{s}$ $\quad A_v = n \frac{\pi}{2} A_b$

$= \frac{0.079 in^2 \; 60ksi \times 13.25''}{6''}$ $\quad = 1 \frac{\pi}{2} \times 0.05 in^2$
$= 0.079 in^2$

$= 10.8$ kips

$\phi V_n = 0.85(V_c + V_s)$
$= 0.85(37.1 + 10.8)$
$= 40.7$ kip $> V_o = 26.2^k$

$\therefore$ piles will not shear off

$v_c = 3 \times$ Factor 2 $\sqrt{f'_c} \le 4\sqrt{f'_c}$ 3000
$= 3 \times 1.10 \times \sqrt{3000} \le 220$ psi
$= 182$ psi same

- It will be advisable to isolate pile cap Pier 8 only by say 5' to reduce seismic force.
  - not designed as ductile for confinement spacing.

A

SHEET NO. 1 OF 2
PROJECT NO. 1329
DATE 6/24/08
BY S. Nagi
CHK'D

TRC

SUBJECT Pile Stability - Scour

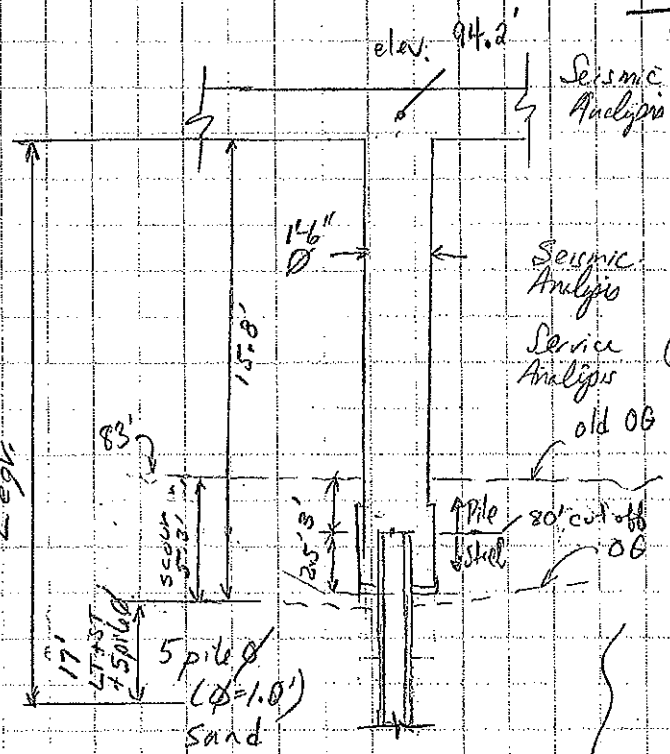
Assume LT = 6' say (degradation + contract) → close to 5.3' (P4)
ST = 6' say (Pier scour) ← assumed.

Leq:

Seismic Analysis ① Exist condition: Lclr + 5 pile Ø (use 1.5') larger Ø.
(0% LT, 0% ST)

Seismic Analysis ② 100% LT + 50% ST = 6' + 3' = 9'

Service Analysis ③ 100% LT + 100% ST = 6' + 6' = 12'



Pier 4

Perform Service check on stability

stiffness ratios

EI conc pile = 4067 ksi × 5153 in⁴ (gross)
= 20,957,251 k-in²

EI steel = 29000 ksi × Iyy 45 in⁴
= 1,305,000 k-in² weak

EI steel = 29000 ksi × 209 in⁴
= 6,061,000 k-in² strong

EI conc / EI steel = 16.0 X weak dir

EI conc / EI steel = 3.45 X strong dir.

- conc pile much stiffer than steel 16X

Check steel pile under scour (service)

③ Unsupported length = 15.8' + 12 (scour)
= 27.8'
∴ Lc = 27.8'

A

SHEET NO. 2 OF 2
PROJECT NO. 1329
DATE 6/24/08
BY S. Nagi
CHK'D

TRC

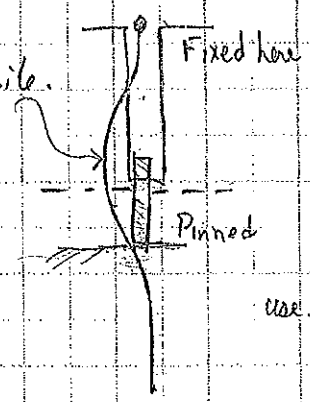
SUBJECT Pile Stability - Scour

Pile compression re-calculate (Euler Buckling)

- End condition - fixed top, pin bottom ⇒ $L_{equ.} = 0.7 L_c$ ie $K = 0.7$
  - pin - pinned $K = 1.0$

$L_c = 27.8'$

(max axial) P ↓ (No Moment)
concentric load



- assume all steel pile.

$$\frac{K L_c}{r} \le \frac{2\pi^2 E}{F_y}$$

$$\frac{0.7(27.8' \times 12)}{1.98 in} \le 126$$

r_y 1.98 in

117.9 ≤ 126

use smallest.

LFD Group I

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E}\left(\frac{K L_c}{r}\right)^2\right)$$

$$= \frac{36000}{1000}\left(1 - \frac{36000}{4\pi^2 29000000}(117.9)^2\right)$$

$= 20.2$ ksi

strength $P_u = 0.85 A_s F_{cr}$
$= 0.85 \; 11.5 in^2 \; 20.2 ksi$
$= 197$ kips

$P_{DL+HS} = 1.3(DL + 1.0 HS)$
$= 1.3(49 + 1.0 \; 31.8)$
$= 105.0$ k.

BDS run ...

0.6T1 DL = 216k / 5 piles = 43.2k
T2 DL = 28.7 / 5 piles = 5.74
LL#4 = 159.1k / 5 piles = 31.8k includes impact

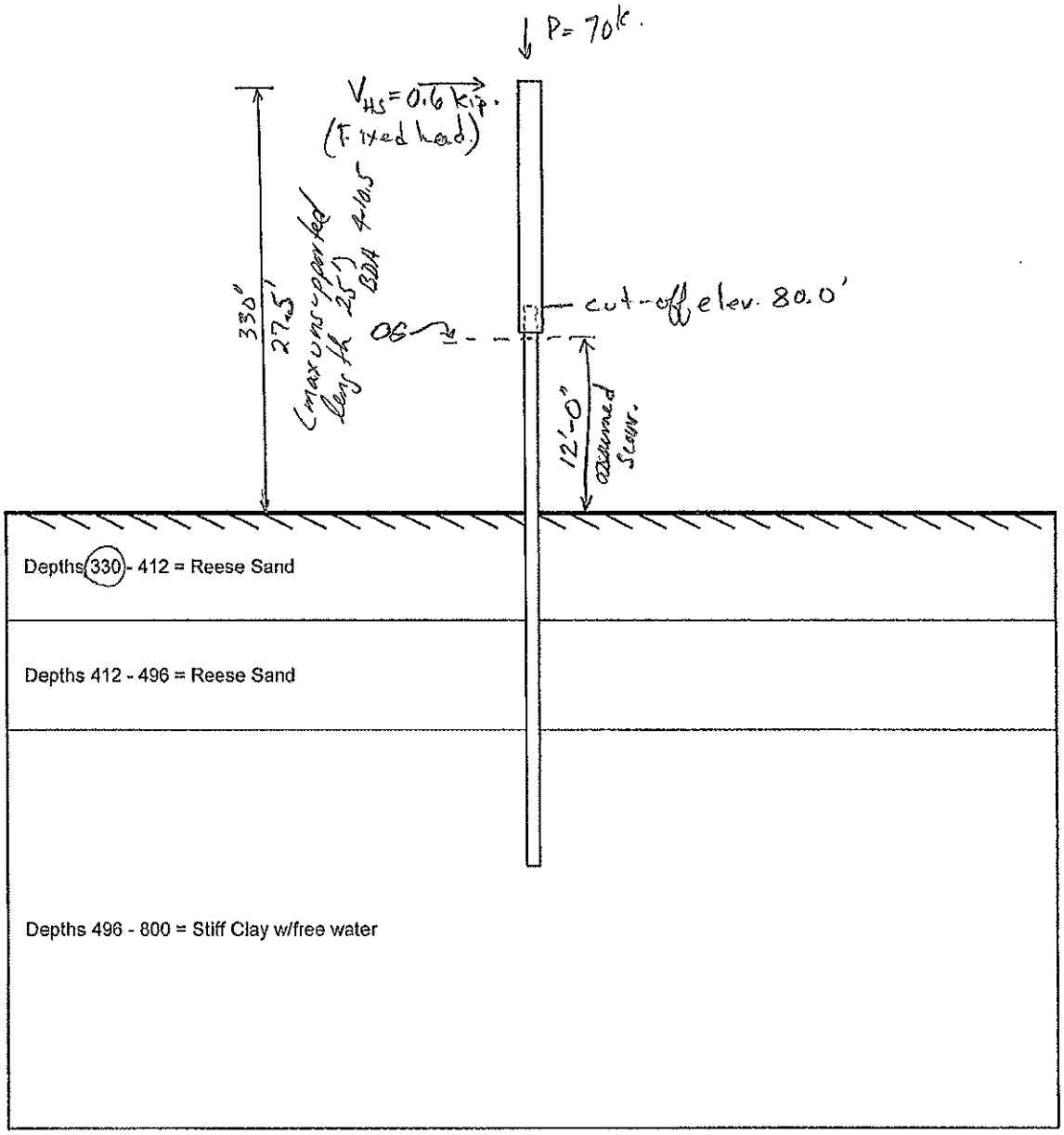
} 82 kip < 90 kip (45 Ton piles)

2 Live Load lanes

$D/C = \frac{105^k}{197^k} = 0.53$

good, pile stable for axial compression (buckling)

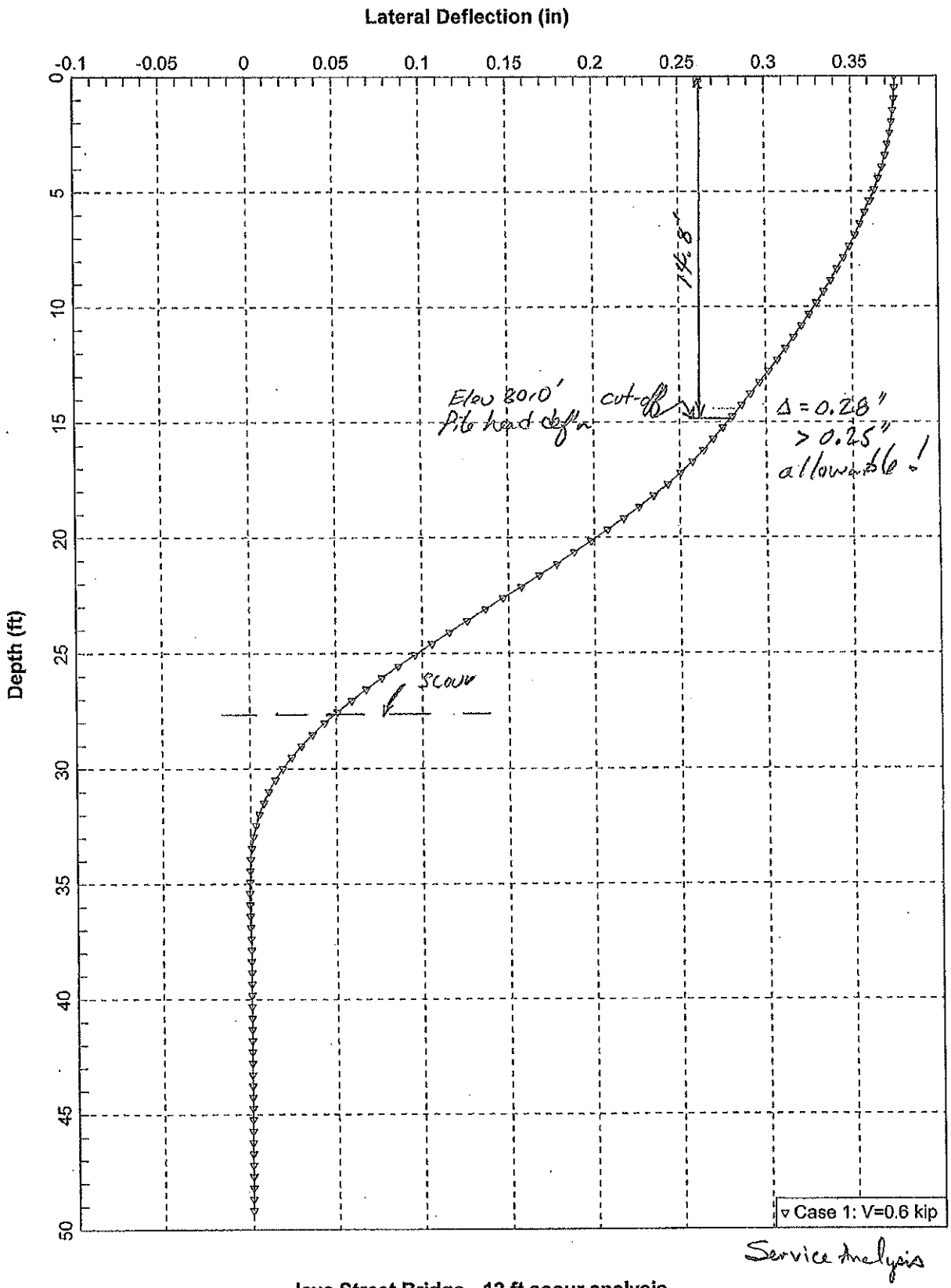
A



12' Scour

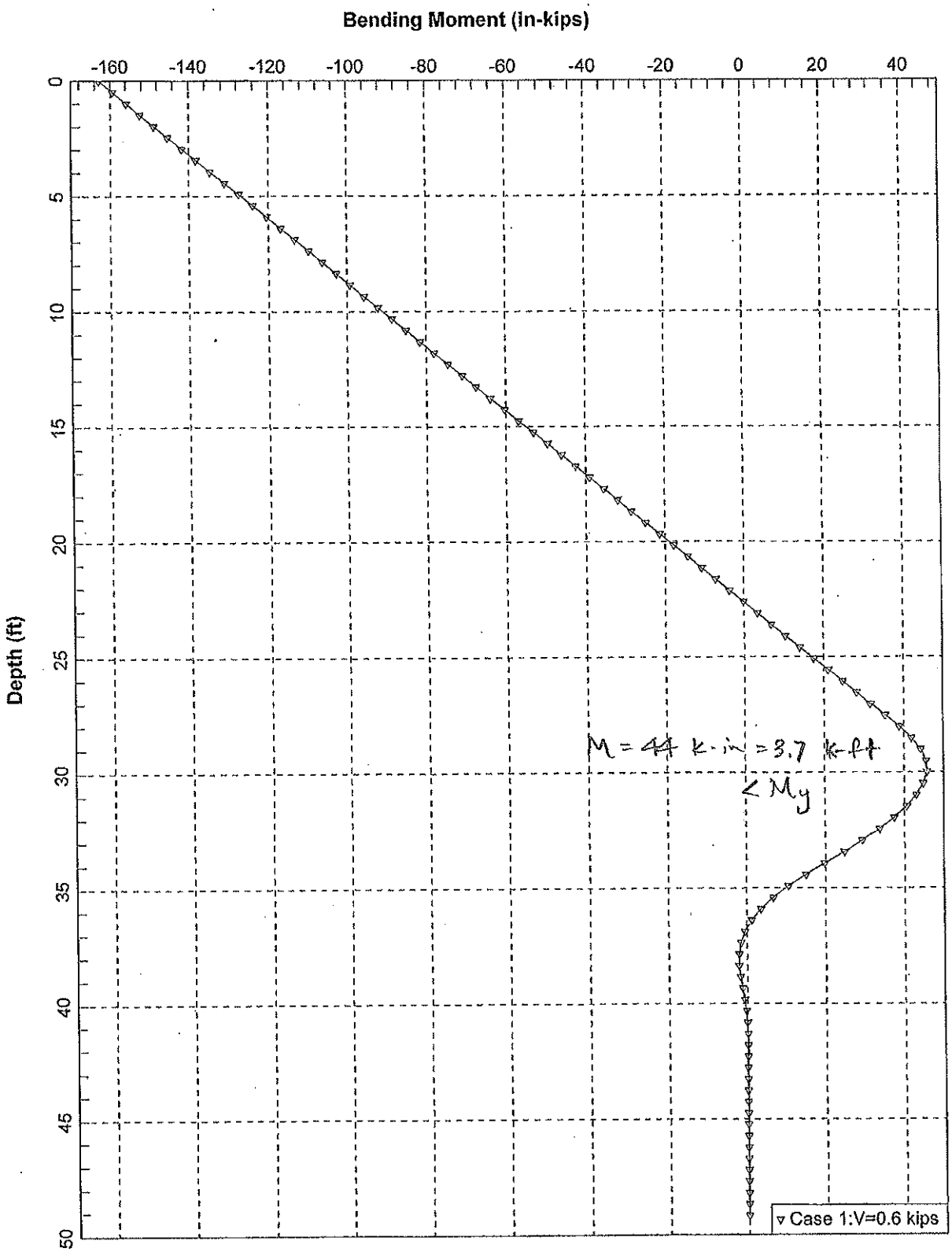
LPile Plus for Windows 5.0.36, (c) 2006 by Ensoft, Inc.

S. Nagi 1329

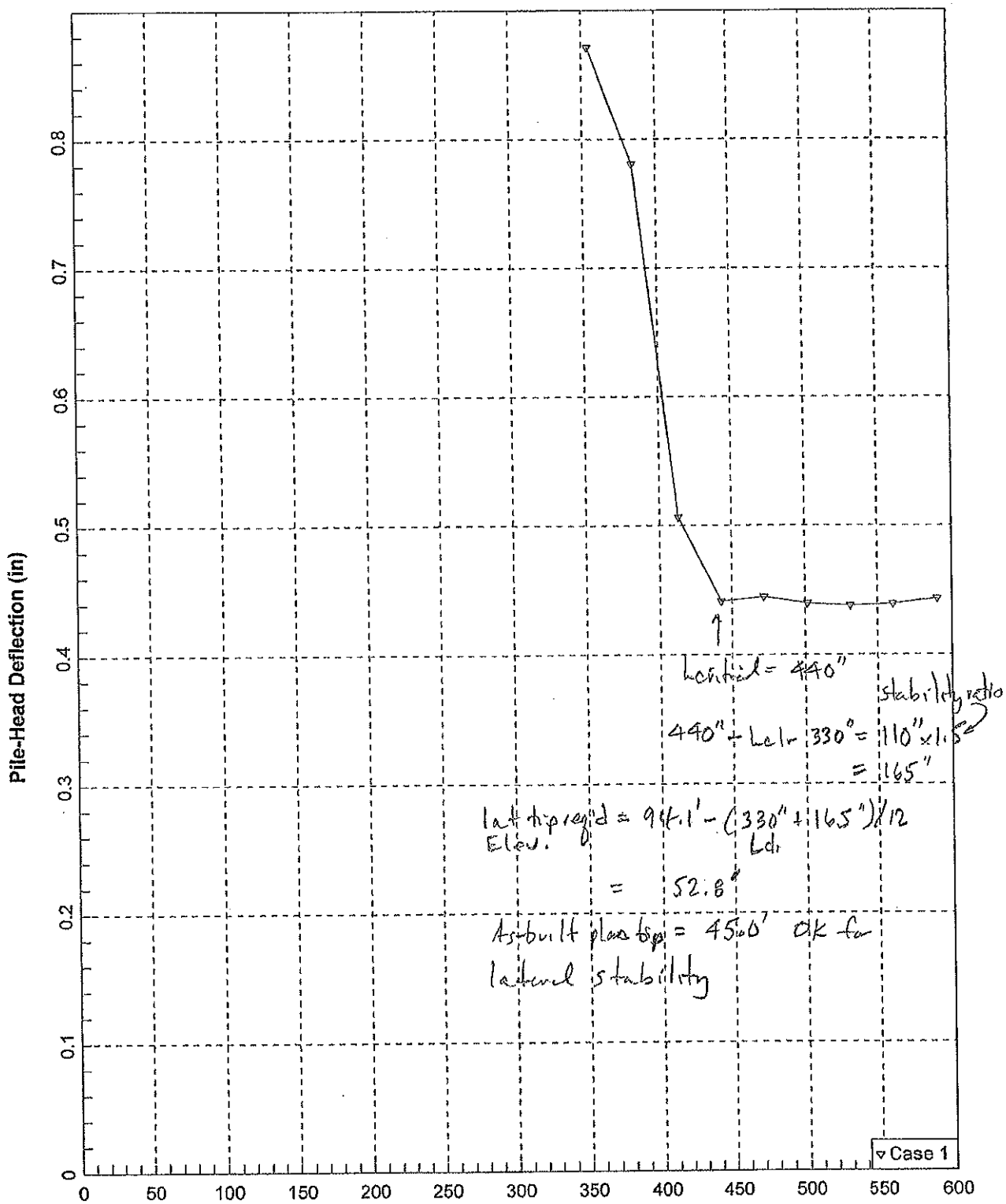


Jaye Street Bridge - 12 ft scour analysis

S. Nugi 1329



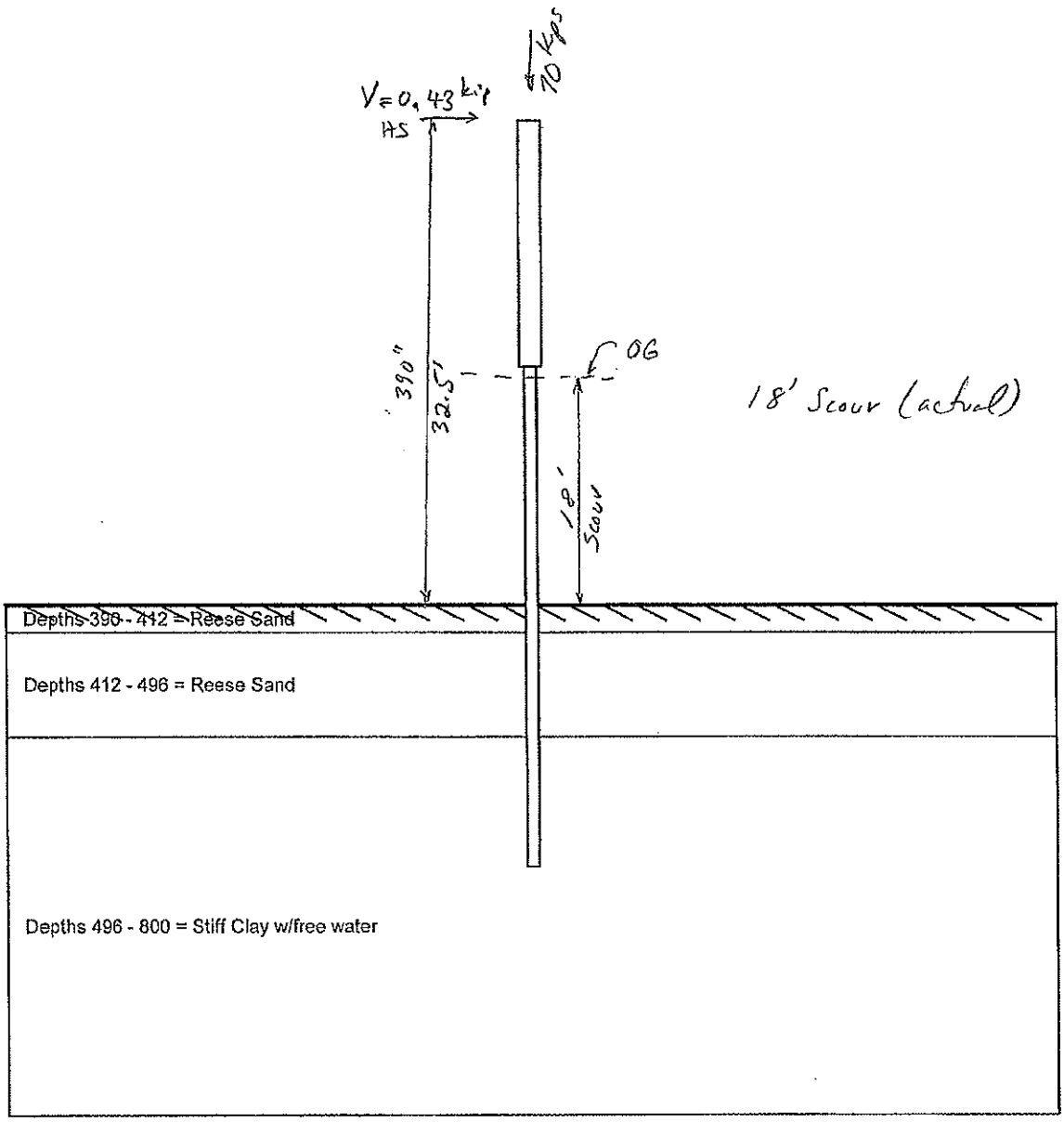
Jaye Street Bridge - 12 ft scour



Pile Length (in)

Jaye Street Bridge - 12 ft scour

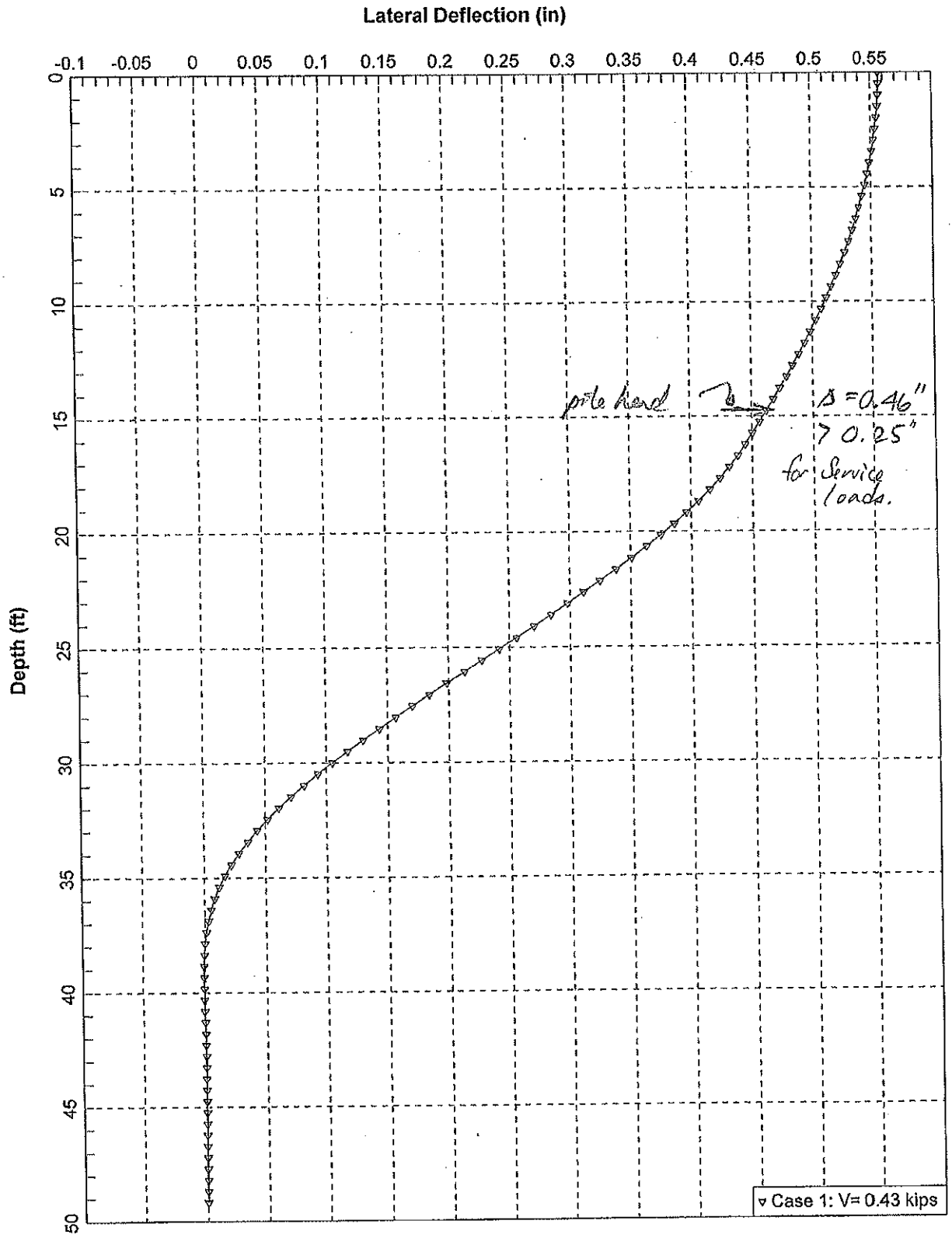
S. Nagi 1329



18' Scour

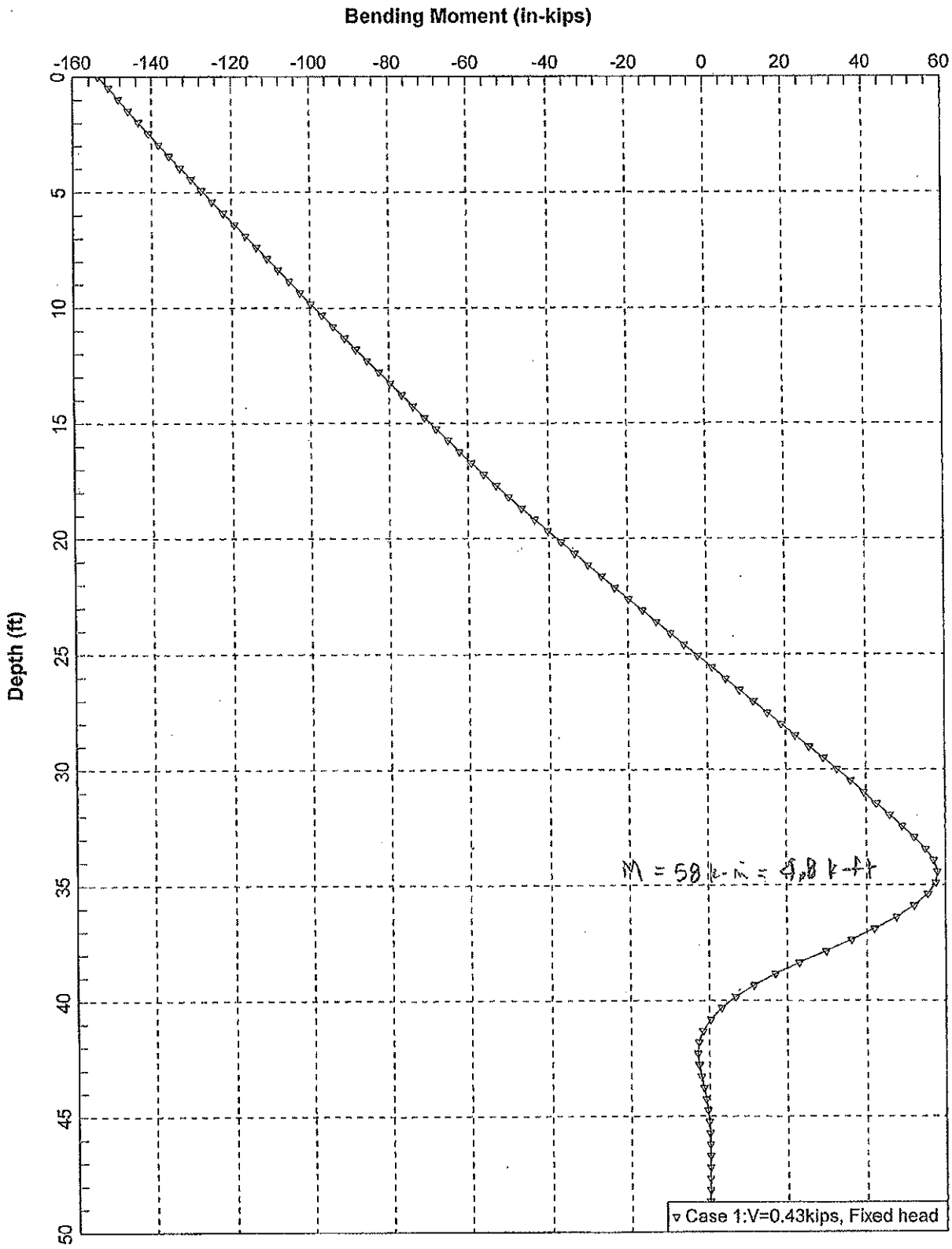
LPile Plus for Windows 5.0.36, (c) 2006 by Ensoft, Inc.

S. Nagi 1329

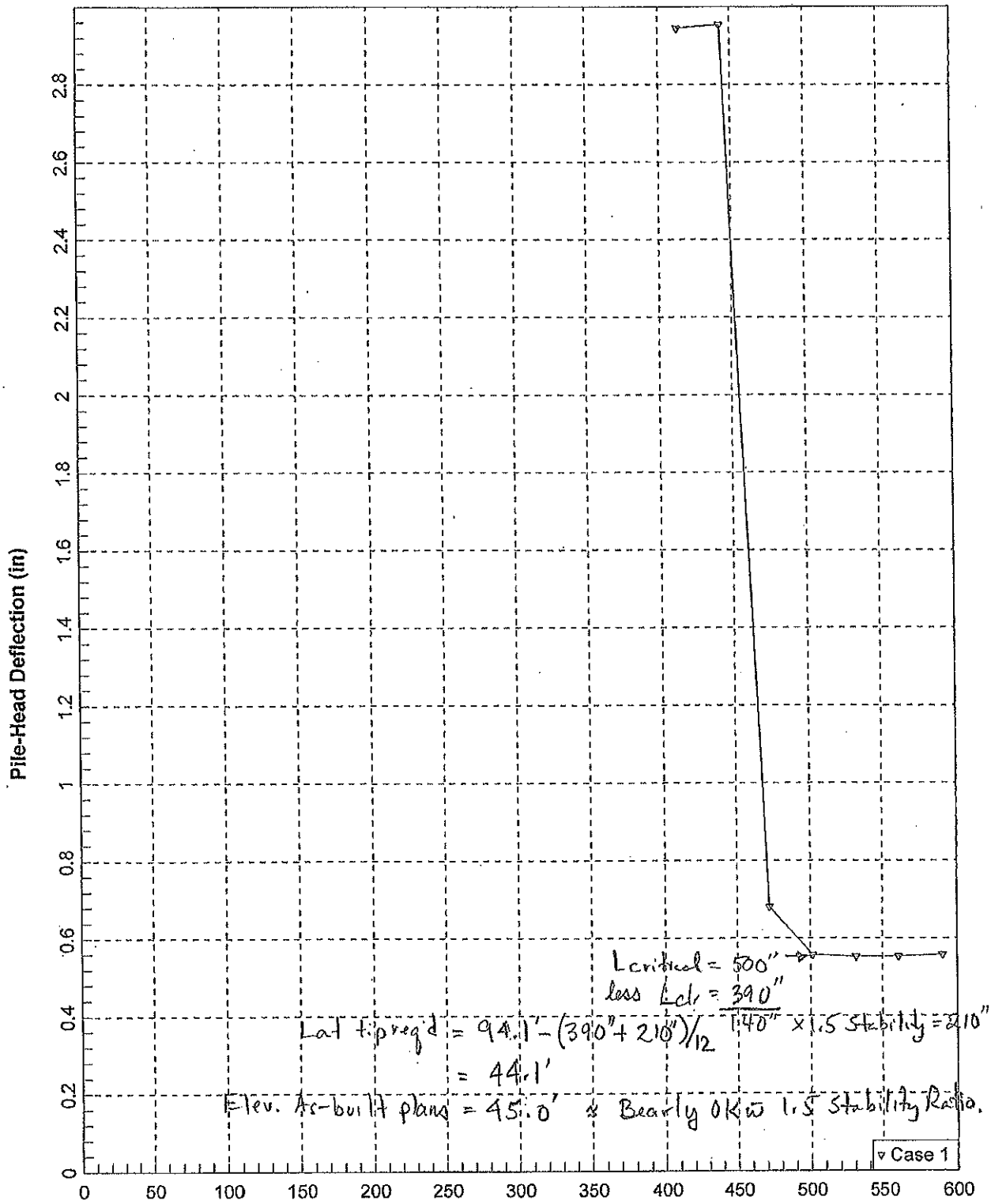


Jaye Street Bridge - 18 ft scour

S. Nagi 1329

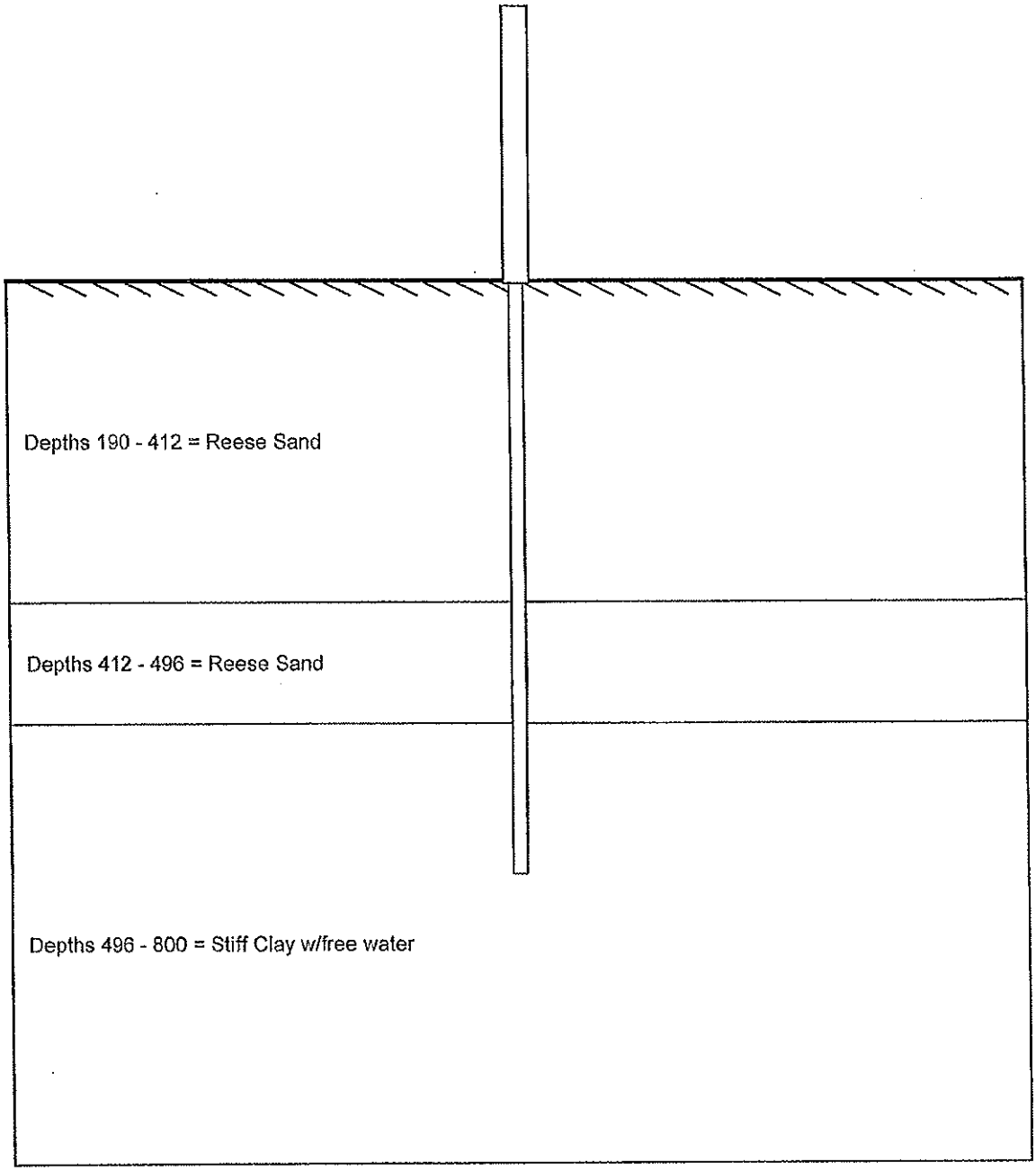


Jaye Street Bridge - 18 ft scour



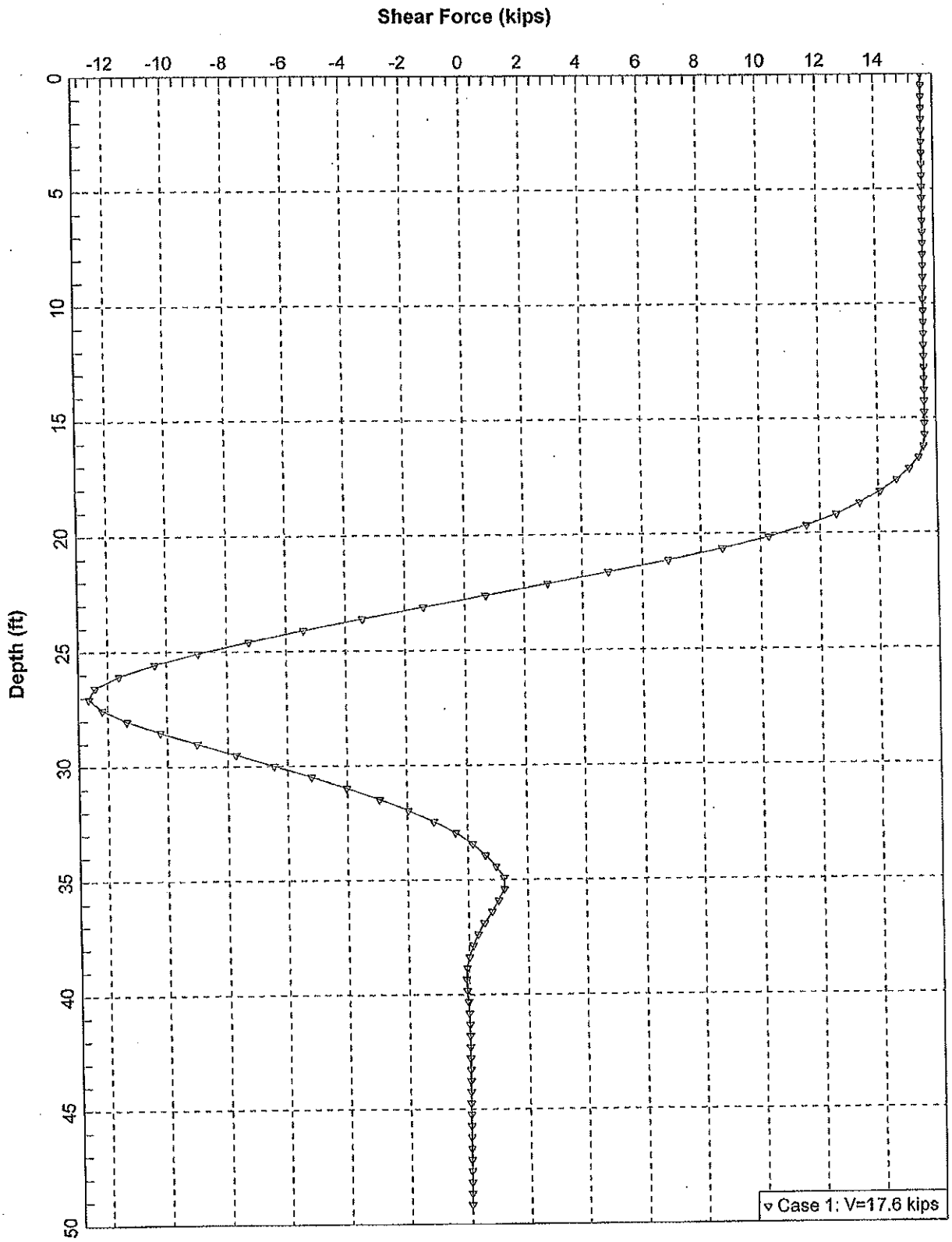
Pile Length (in)

Jaye Street Bridge - 18 ft scour

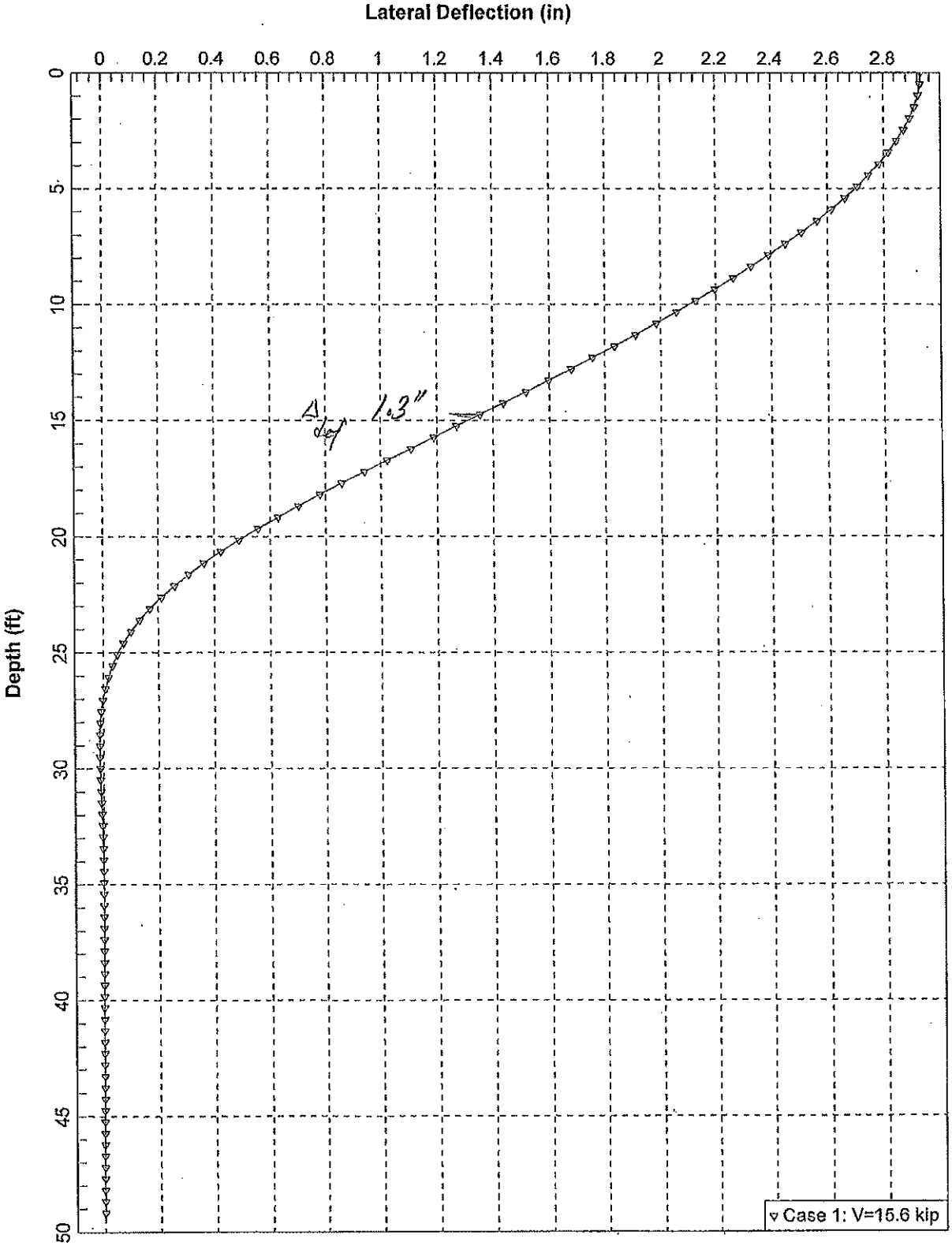


Transverse Veq (no scour)

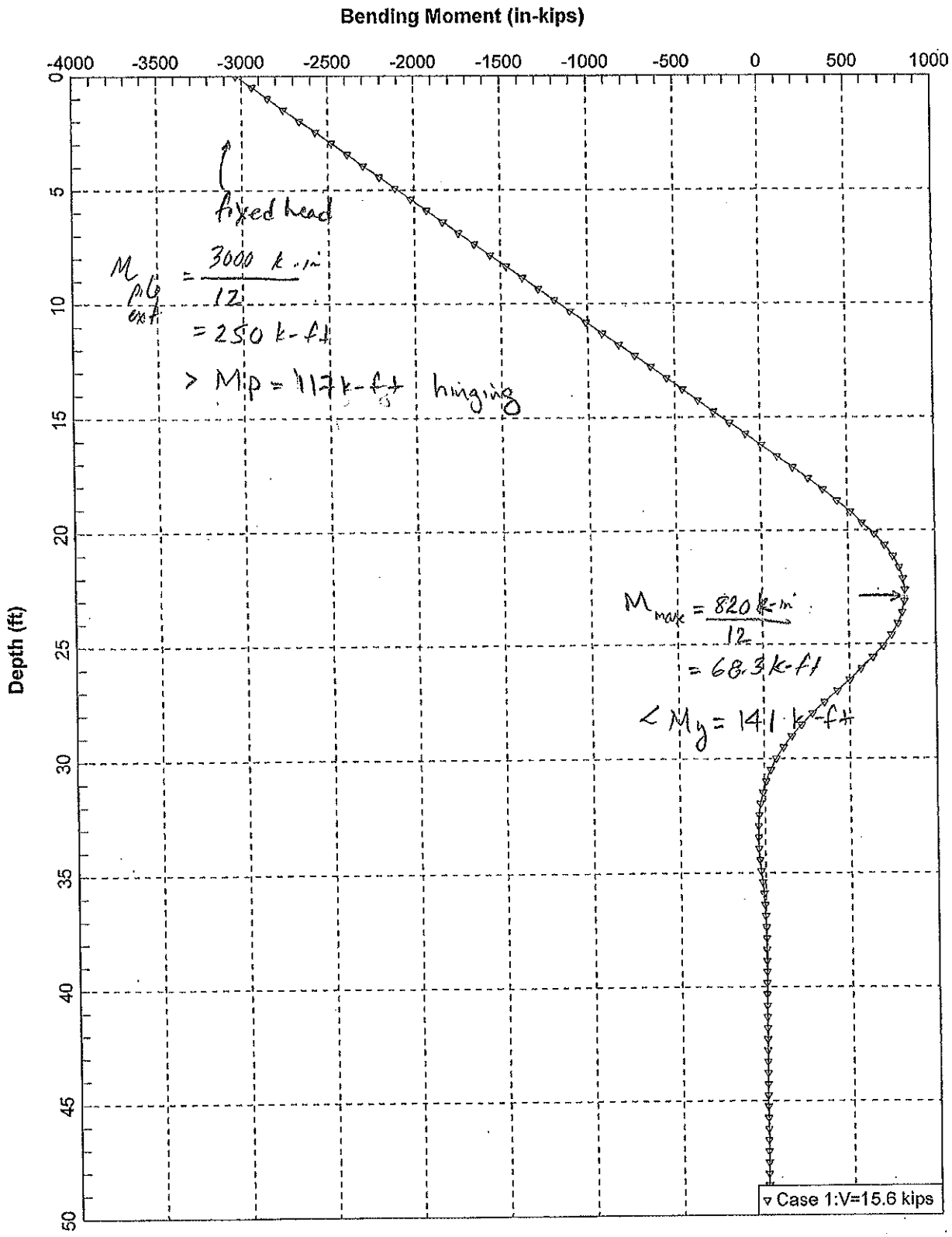
LPile Plus for Windows 5.0.36, (c) 2006 by Ensoft, Inc.



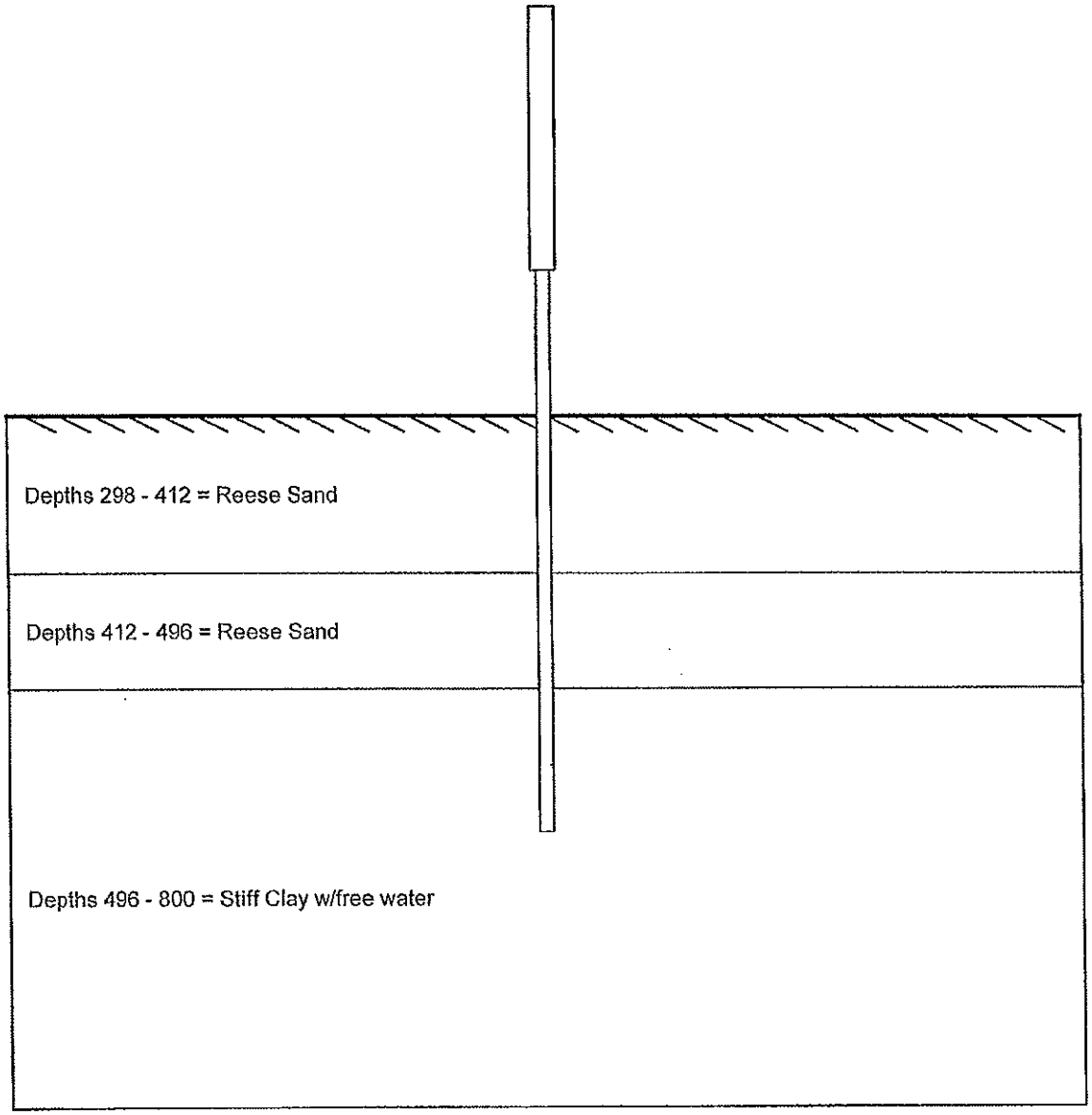
Jaye Street Bridge - 0 ft scour (transverse)



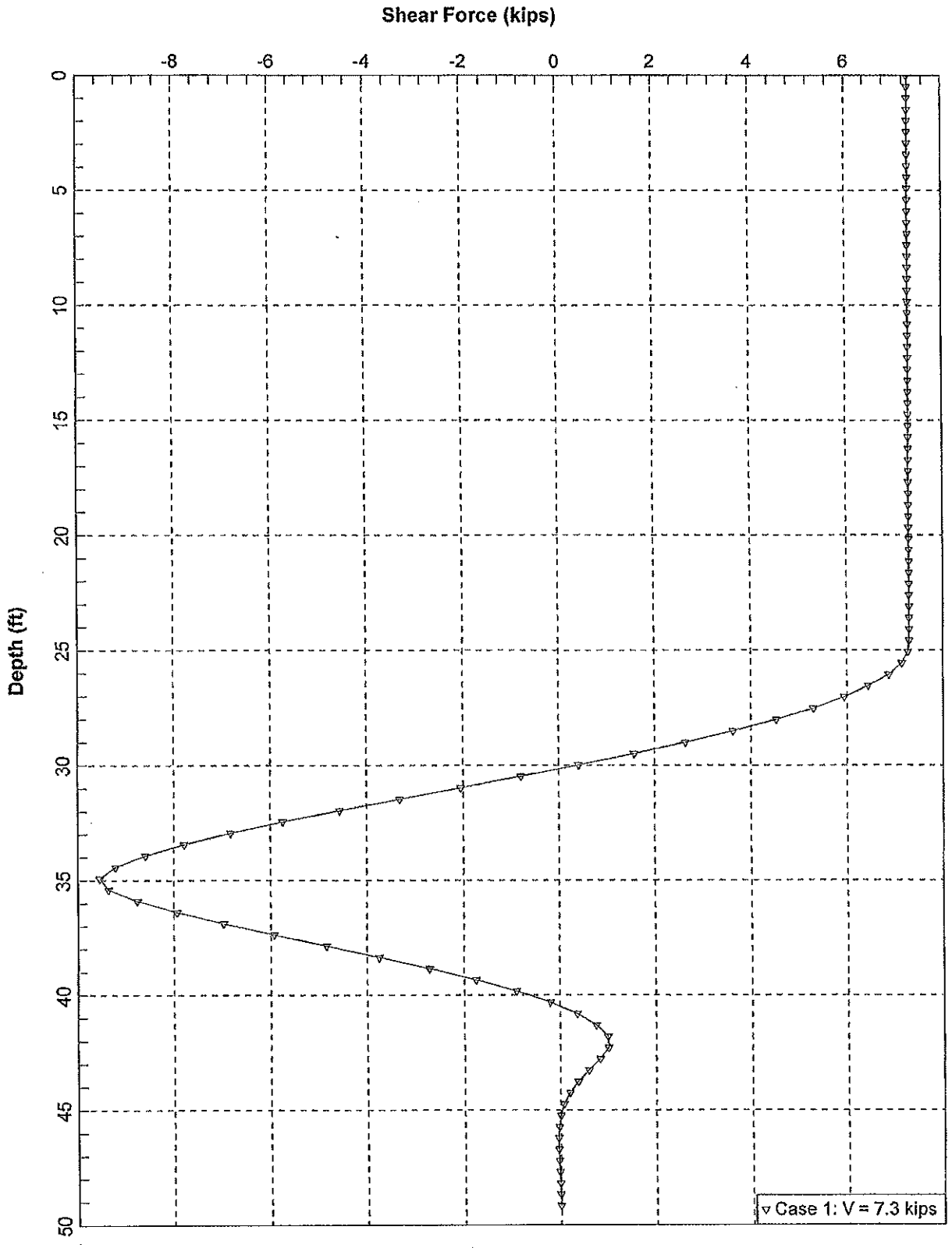
Jaye Street Bridge - 0 ft scour analysis



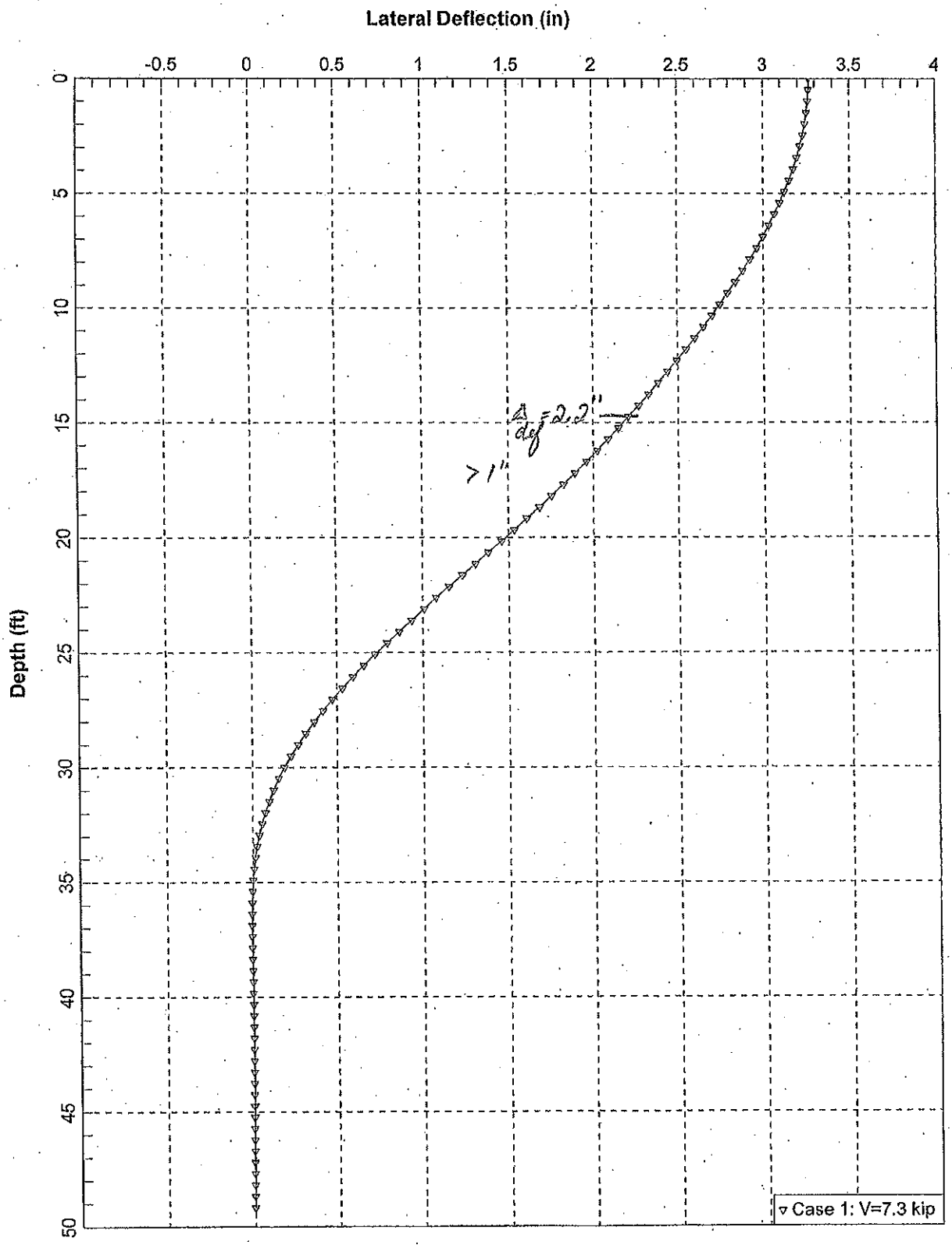
Jaye Street Bridge - 0 ft scour (transverse)



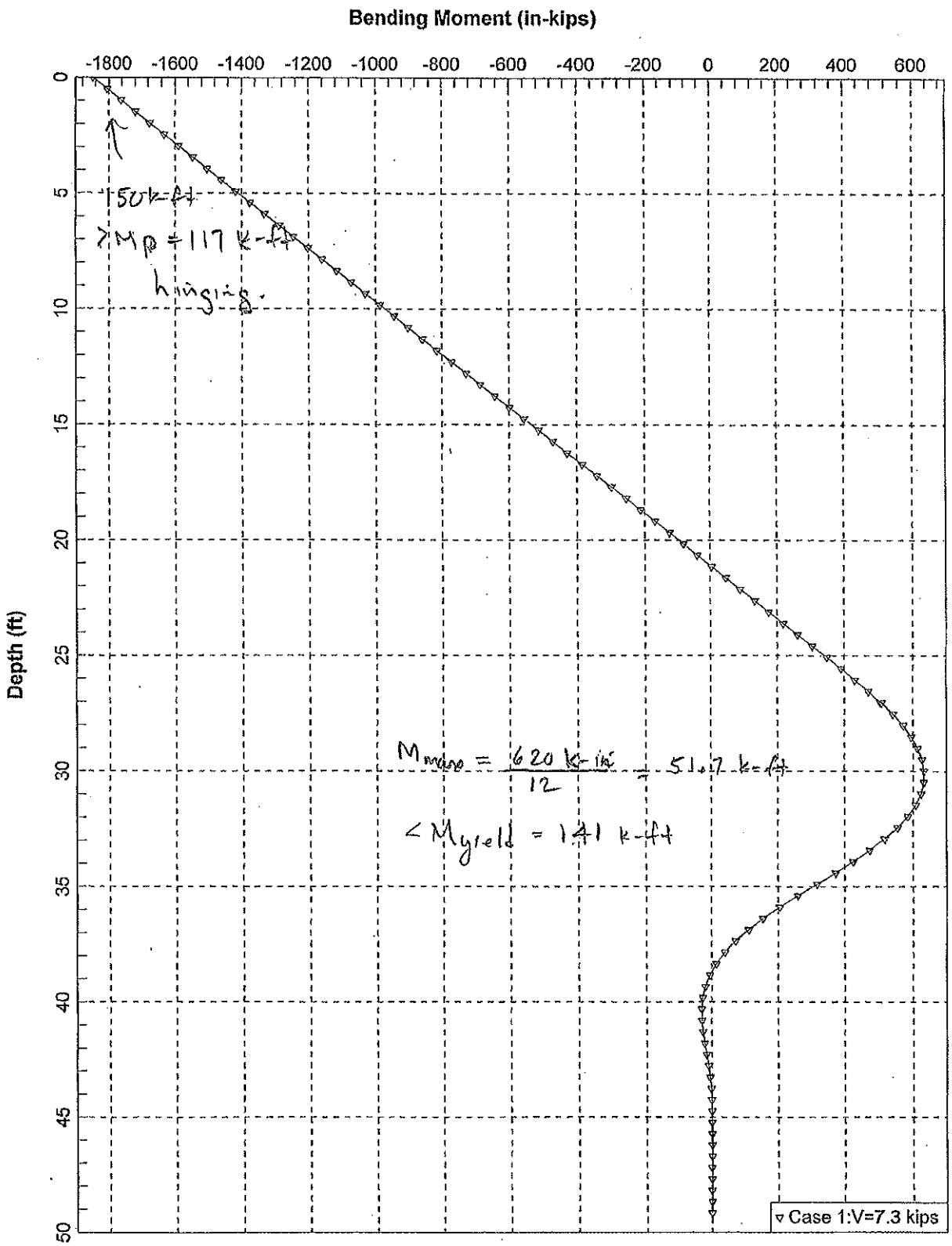
Transverse Veg (with scour 9 ft)



Jaye Street Bridge - 12ft scour transverse



Jaye Street Bridge - 12 ft scour analysis



Jaye Street Bridge - 12 ft scour (transverse)

APPENDIX D

Summary – Bridge Maintenance Reports

Summary – Bridge Maintenance Reports

Jaye Street Bridge (on Tule River), Br No. 46C0099

Summary

- Appears the channel has dropped 5' from 1970 to 2003.
- Channel material is composed of sand, gravel and rock.
- Channel has a rock check dam upstream of the bridge.
- Bridge is not considered scour critical at this time.
- Bridge is structurally deficient due to deck cracking.
- North approach pavement has pattern cracking.
- Moderate size pattern cracking over the Bents with severe density (4" to 6" spacing).
- Medium size transverse deck crack over Abutment 1.
- Medium size longitudinal deck crack 13' long starting at the BB.
- Recommend methacrylate bridge deck.
- Concrete pile extensions are exposed from 1' at the upstream piles to 3'-3" at the downstream piles for Bents 2 through 5.
- SI&A Report: SR=76.7, Deck-4, Superstructure-7, Substructure-6, Channel-7
- ADT = 10379 (1992); Future ADT = 12000 (2020).
- Depth of scour at Bent 4, column 1 remains at 1'.
- Encroachment: 6" steel pipe along right side (east side).
- Encroachment: 10" ductile iron pipe along left side (west side).
- Large amount of drift collected along the columns of Bent 3.
- Encroachment: 12" CI pipe along the base of the left rail (west side).

3/09/07

- Water depth was approximately 6" at the time of inspection – all elements were inspected.
- Table provided of exposed length of concrete pile extensions at Bents 2 thru 5.
- SI&A Report: SR=76.7, Deck-4, Superstructure-7, Substructure-6, Channel-7
- ADT = 10379 (1992); Future ADT = 12000 (2020).

3/02/05

- The north approach pavement in the northbound lane has pattern cracking.
- Moderate size pattern cracking over the bents with severe density (100 to 150 mm spacing).
- Medium size transverse deck crack over Abutment 1.
- Medium size longitudinal deck crack 4 m long starting at the BB.
- Abutment 1 approach pavement has settled 15 mm.
- Rock slope protection has been placed at Abutment 1.
- Continued evidence of scour at Bents 2 thru 5, with Bent 4 having the largest amount.

9/30/03

- Appears the channel has dropped 5' from 1970 to 2003.
- Channel material is composed of sand, gravel and rock.
- Channel has a rock check dam upstream of the bridge.
- Bridge is not considered scour critical at this time.

Summary – Bridge Maintenance Reports

Jaye Street Bridge (on Tule River), Br No. 46C0099

2/11/03

- Bridge is structurally deficient due to deck cracking.
- Same cracking patterns as before.
- Similar scour description as before.

2/27/01

- North approach pavement has pattern cracking.
- Moderate size pattern cracking over the Bents with severe density (4" to 6" spacing).
- Medium size transverse deck crack over Abutment 1.
- Medium size longitudinal deck crack 13' long starting at the BB.
- Recommend methacrylate bridge deck.
- Approach pavement at Abutment 1 has settled 1".
- Concrete pile extensions are exposed from 1' at the upstream piles to 3'-3" at the downstream piles for Bents 2 through 5.
- Channel has degraded 4'-4" from 1970 to 2001.
- SI&A Report: SR=76.7, Deck-4, Superstructure-7, Substructure-6, Channel-7

12/1/94

- Depth of scour at Bent 4, column 1 remains at 1'.
- Scour to variable depths under Spans 2 and 3.

12/29/92

- Depth of scour at Bent 4, column 1 remains at 1'.
- Following columns have tops of steel pile exposed at varying depths of 4" to 8": Bent 4, column 2; Bent 5, columns 2, 3 and 4.

1/30/91

- Ratings: Deck-7, Superstructure-8, Substructure-6, Waterway Adequacy-8, Channel-7.
- AC pavement on both approaches is cracked.
- Many light to medium transverse and longitudinal cracks at 1' to 2' on center on the entire deck surface without any evidence of any cracks or efflorescence in the deck soffit.
- Scour to variable depths up to 4' under Spans 2 and 3.
- Bent 4, column 1 is undermined to about 1' exposing steel pile with few rust speckles.

5/11/89

- South approach is ½" lower than the bridge deck.
- Left gutter filled with dirt.

10/14/87

- Bent 4, Pile #1 is exposed 12".
- Left gutter filled with dirt.

Summary – Bridge Maintenance Reports

Jaye Street Bridge (on Tule River), Br No. 46C0099

6/12/85

- Repair approach guardrail right side at Abutment 1.

7/28/83

- Encroachment: 6" steel pipe along right side (east side).
- Encroachment: 10" ductile iron pipe along left side (west side).
- Large amount of drift collected along the columns of Bent 3.

6/15/77

- Structure is capable of supporting legal loads and purple permit loads.
- Load rating calculations done 7/19/77.

5/20/77

- Reinforced concrete pile bent extensions on 10BP42 piles.
- Many light random longitudinal deck cracks with some transverse cracks over the bents.
- The AC approach is 1" lower than the deck elevation and is cracked with some raveling.
- Generally good condition and shows no signs of distress.
- Encroachment: 12" CI pipe along the base of the left rail (west side).
- ADT = 4500; detour length = 1 mile.
- Stream section taken.

6/3/71

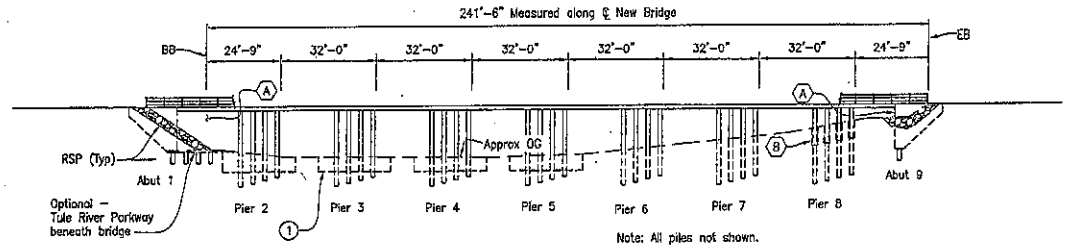
- Built 1970.
- 8-span reinforced concrete slab supported on end diaphragm type abutments with steel piles (10BP42).
- Spans: 24', 6 @ 32' and 24'; total = 240'.
- Roadway width 28'.

APPENDIX E

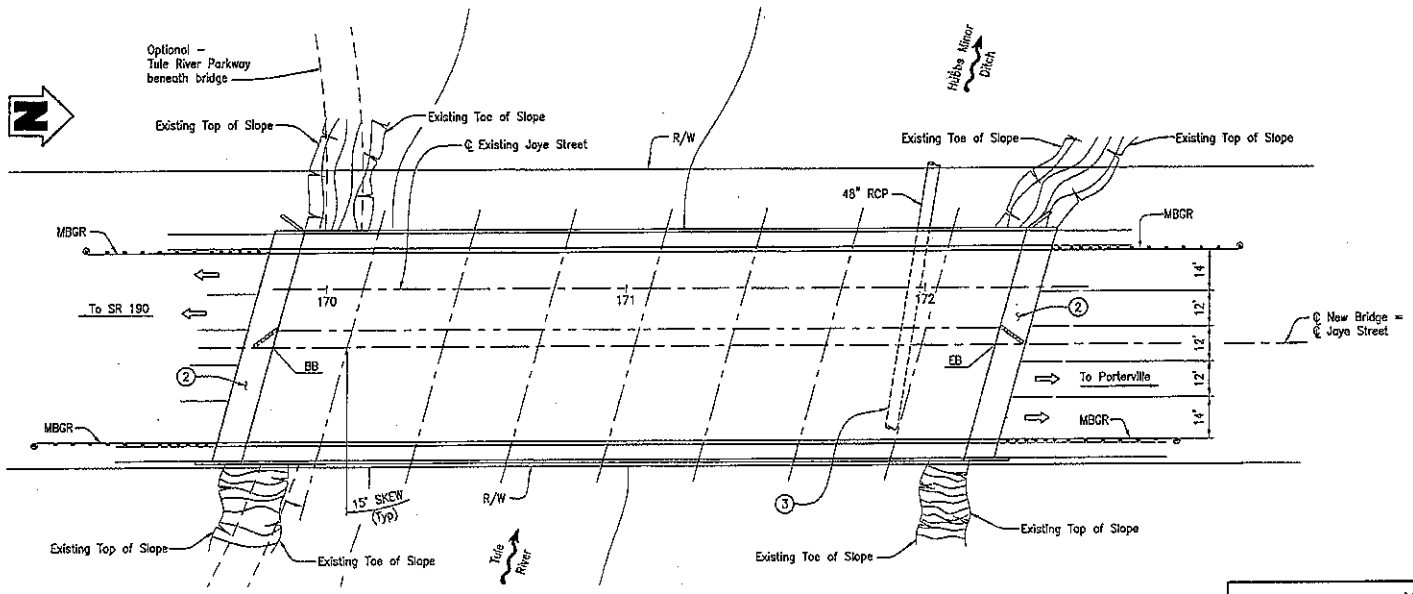
Bridge Alternative General Plans and Type Selection Memo

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

TRC 10580 White Rock Road Suite 100 Rancho Cordova, CA 95670



ELEVATION
1"=20'



PLAN
1"=20'

LEGEND:

- Indicates Existing Bridge
- Indicates Direction of Traffic
- Indicates Direction of Flow
- Indicates Bridge Removal (portion)

RETROFIT LEGEND:

- (A) Indicates Diaphragm Retrofit
- (B) Indicates Isolation casing

Notes:

1. Scour countermeasures required at Piers 2 to 5
2. Structure Approach - Type R(100)
3. Reconstruct RCP may be required

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DESIGN BY S. NAGI	DATE 07-08-08	ALTERNATIVE 1A
		REHABILITATE EXISTING BRIDGE – WIDEN EAST SIDE
DRAWN BY J. HERRERA	DATE 07-08-08	ADVANCE PLANNING STUDY
		JAYE STREET BRIDGE AT TULE RIVER
CHECKED BY	DATE	BRIDGE NO. 46C-0099
APPROVED	DATE	SCALE AS SHOWN

SHEET 1 OF 2

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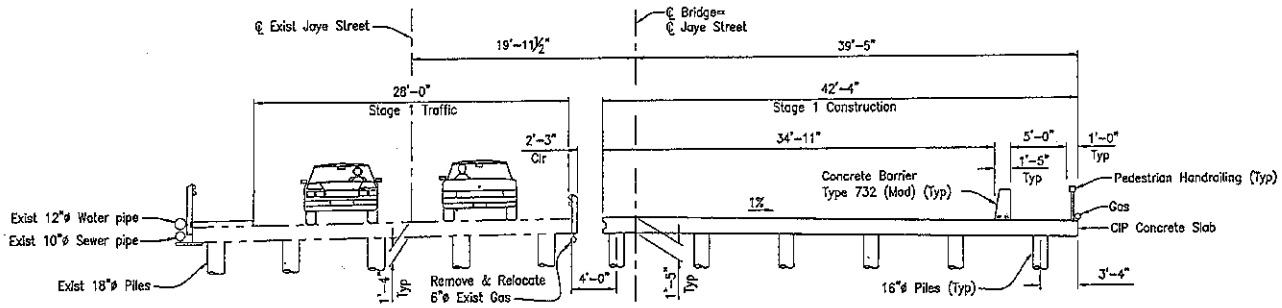
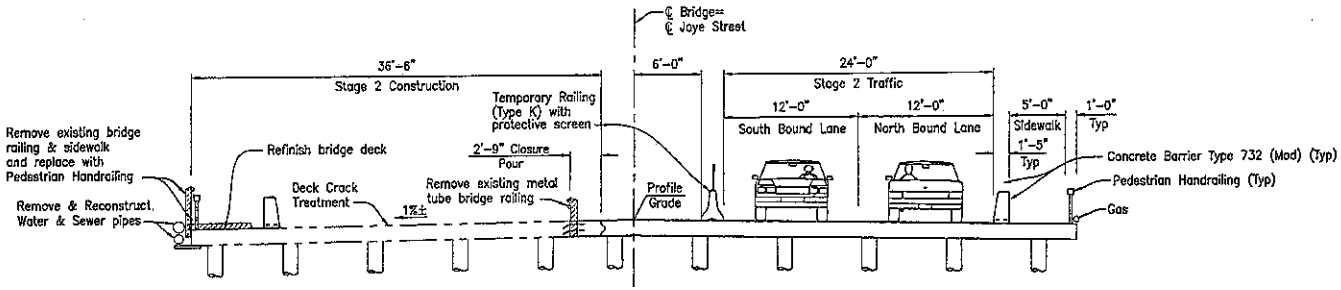
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

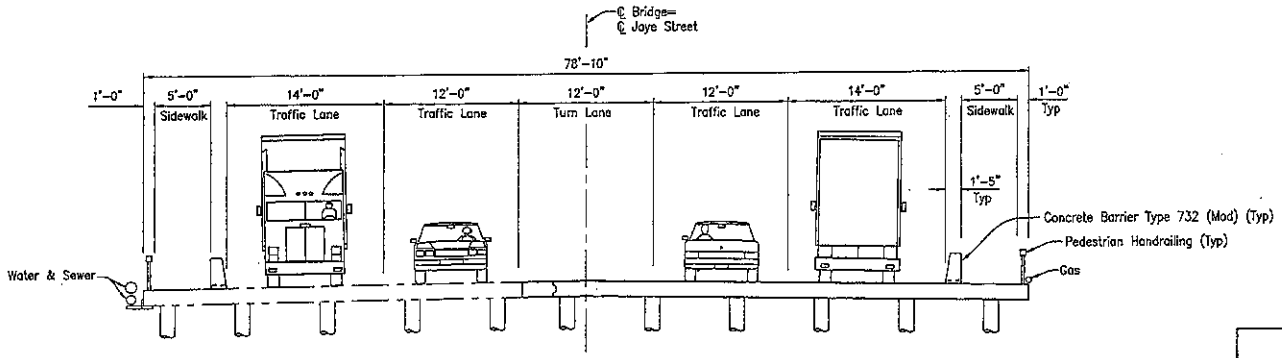
TRC 10680 White Rock Road Suite 100 Rancho Cordova, CA 95670



STAGE 1 - CONSTRUCT NEW EAST PORTION OF BRIDGE AND APPROACHES



STAGE 2 - REHABILITATE EXISTING BRIDGE AND CONSTRUCT CLOSURE POUR



FINAL CONFIGURATION

TYPICAL SECTIONS LOOKING NORTH

1/4"=1'-0"

LEGEND:

- — - — - — Indicates Existing Bridge
- ▨ Indicates Bridge Removal (portion)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DESIGN BY S. NAGI	DATE 07-08-08	ALTERNATIVE 1A
		REHABILITATE EXISTING BRIDGE – WIDEN EAST SIDE
		ADVANCE PLANNING STUDY
DRAWN BY J. HERRERA	DATE 07-08-08	JAYE STREET BRIDGE AT TULE RIVER
CHECKED BY	DATE	BRIDGE NO. 46C-0099
APPROVED	DATE	SCALE AS SHOWN
		SHEET 2 OF 2

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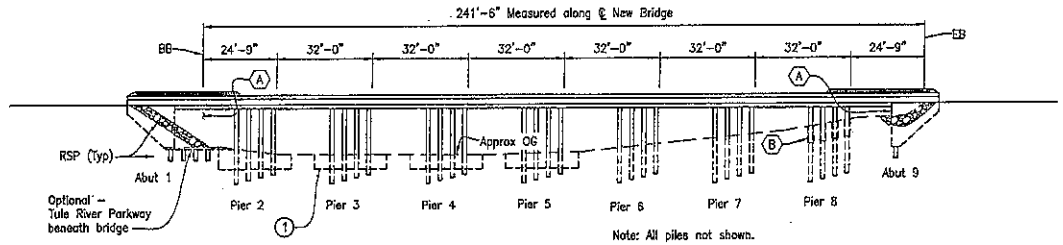
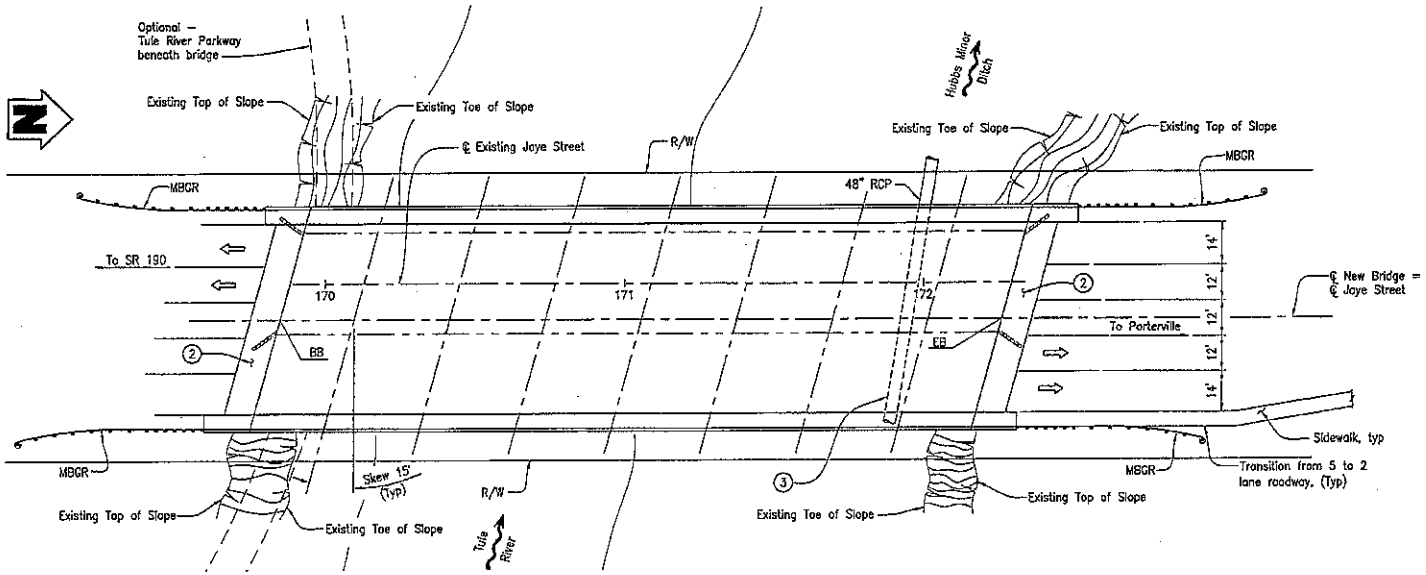
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

TRC 10680 White Rock Road Suite 100 Rancho Cordova, CA 95670



ELEVATION
1"=20'



PLAN
1"=20'

LEGEND:

- Indicates Existing Bridge
- Indicates Direction of Traffic
- Indicates Direction of Flow
- Indicates Bridge Removal (portion)

RETROFIT LEGEND:

- (A) Indicates Diaphragm Retrofit
- (B) Indicates Isolation casing

Notes:

1. Scour countermeasures required at Piers 2 to 5
2. Structure Approache Type R(10D)
3. Reconstruct RCP may be required

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DESIGN BY S. NAGI	DATE 07-08-08	ALTERNATIVE 1B
		REHABILITATE EXISTING BRIDGE – WIDEN BOTH SIDES
DRAWN BY J. HERRERA	DATE 07-08-08	ADVANCE PLANNING STUDY
		JAYE STREET BRIDGE AT TULE RIVER
CHECKED BY	DATE	BRIDGE NO. 46C-0099
APPROVED	DATE	SCALE AS SHOWN
		SHEET 1 OF 2

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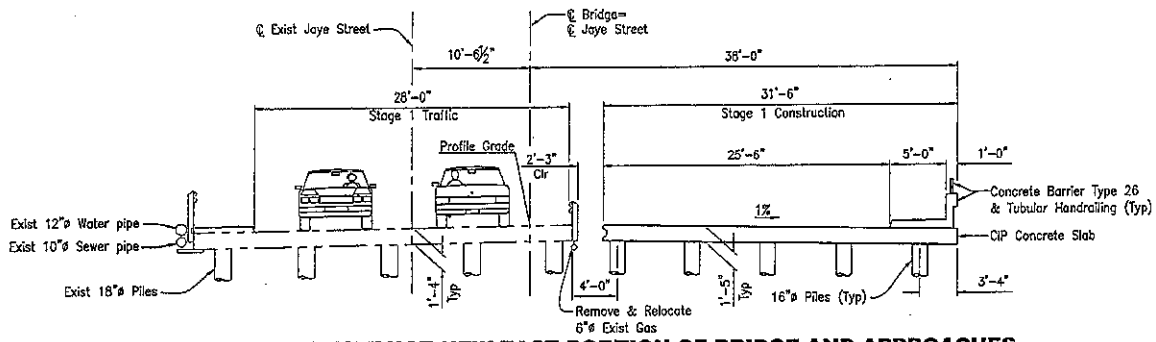
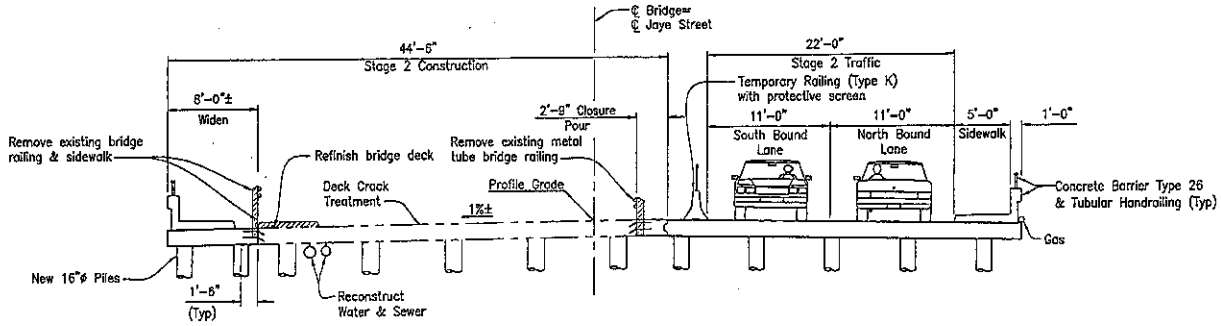
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

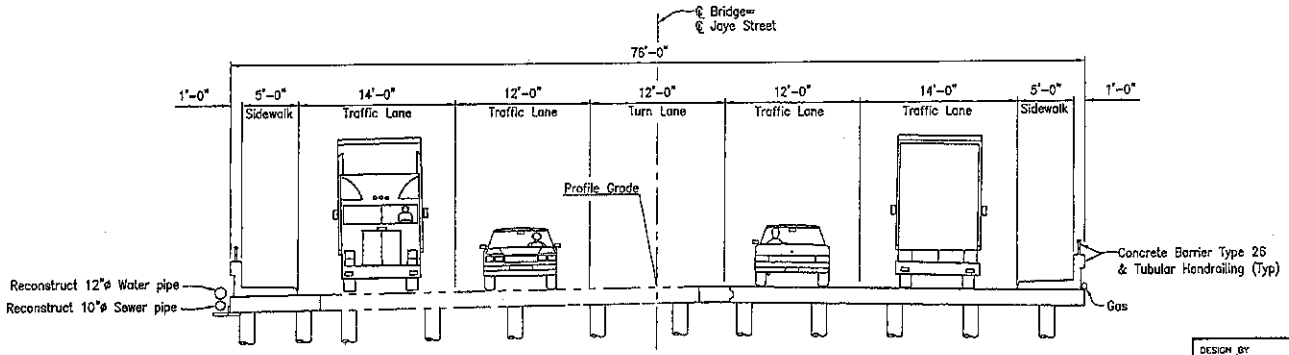
TRC 10680 White Rock Road Suite 100 Rancho Cordova, CA 95670



STAGE 1 - CONSTRUCT NEW EAST PORTION OF BRIDGE AND APPROACHES



STAGE 2 - CONSTRUCT NEW WEST PORTION OF BRIDGE AND APPROACHES, REHABILITATE EXISTING BRIDGE AND CONSTRUCT CLOSURE POUR



FINAL CONFIGURATION

TYPICAL SECTIONS LOOKING NORTH

1/4"=1'-0"

LEGEND:

- - - - Indicates Existing Bridge

▨ Indicates Bridge Removal (portion)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

ALTERNATIVE 1B	
REHABILITATE EXISTING BRIDGE – WIDEN BOTH SIDES	
ADVANCE PLANNING STUDY	
JAYE STREET BRIDGE AT TULE RIVER	
DESIGN BY S. NAGI — DATE 07-08-08	
DRAWN BY J. HERRERA — DATE 07-08-08	
CHECKED BY — DATE	BRIDGE NO. 46C-0099
APPROVED — DATE	SCALE AS SHOWN
	SHEET 2 OF 2

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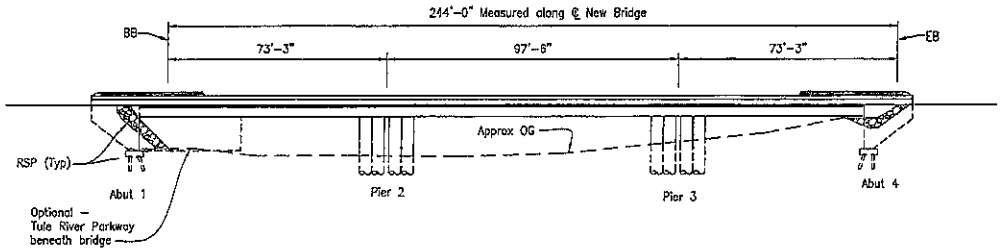
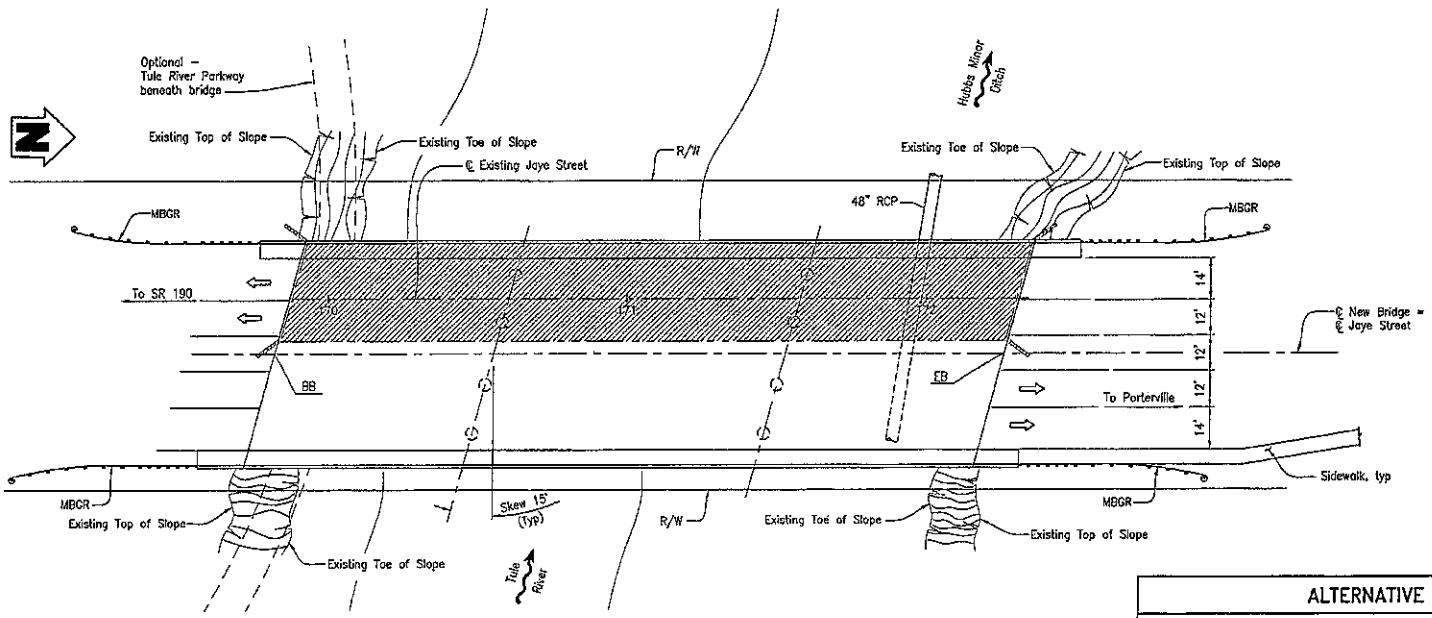
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

TRC 10680 White Rock Road Suite 100 Rancho Cordova, CA 95670



ELEVATION
1"=20'



PLAN
1"=20'

LEGEND:

- Indicates Existing Bridge
- Indicates Direction of Traffic
- Indicates Direction of Flow
- Indicates Bridge Removal

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

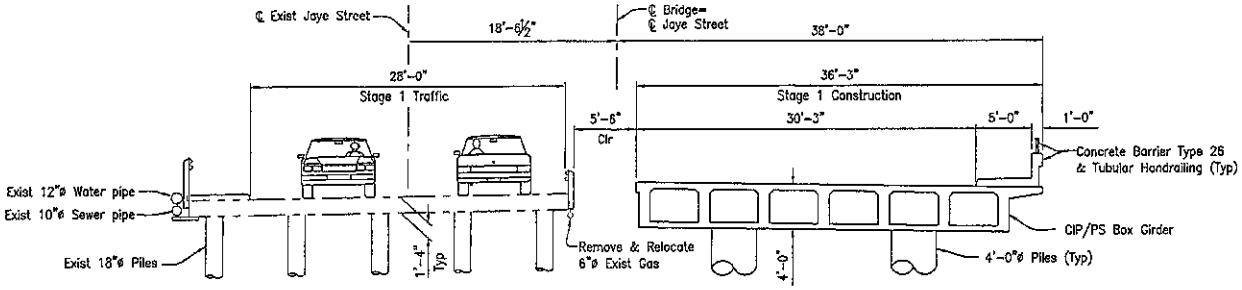
DESIGN BY S. NAGI	DATE 07-08-08	ALTERNATIVE 2
		REPLACE EXISTING BRIDGE – WIDEN EAST SIDE
DRAWN BY J. HERRERA	DATE 07-08-08	ADVANCE PLANNING STUDY
		JAYE STREET BRIDGE AT TULE RIVER
CHECKED BY	DATE	BRIDGE NO. 46C-0099
APPROVED	DATE	SCALE AS SHOWN

SHEET 1 OF 2

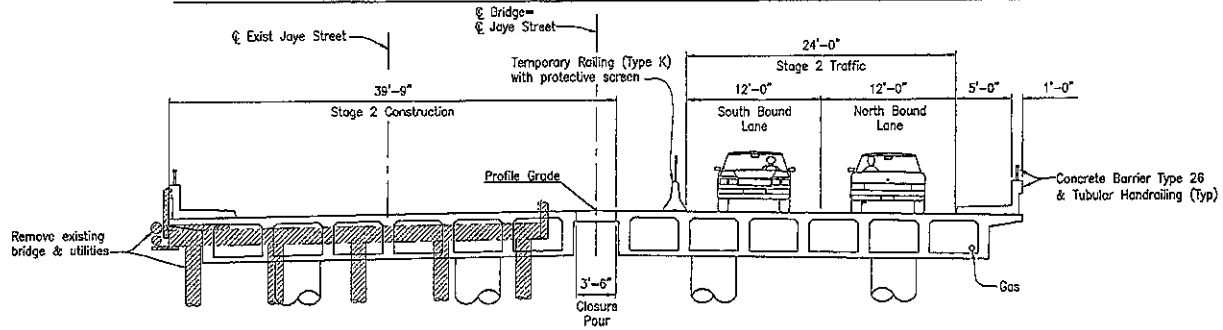
H:\156385-Porterville\ALT 2 BDR.dwg

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
06	Tul	—	—

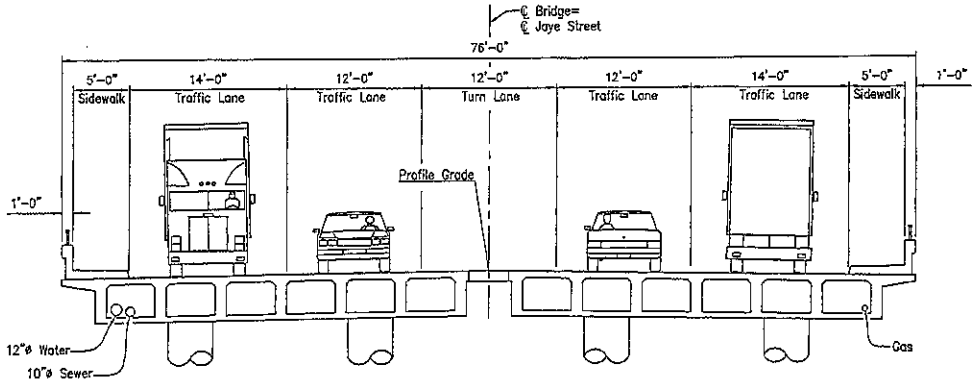
TRC 10680 White Rock Road Suite 100 Rancho Cordova, CA 95670



STAGE 1 - CONSTRUCT NEW EAST PORTION OF BRIDGE AND APPROACHES



STAGE 2 - REPLACE EXISTING BRIDGE AND CONSTRUCT CLOSURE POUR



FINAL CONFIGURATION

TYPICAL SECTIONS LOOKING NORTH

1/4"=1'-0"

LEGEND:

- - - - Indicates Existing Bridge

▨ Indicates Bridge Removal

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DESIGN BY S. NAGI	DATE 07-08-08	ALTERNATIVE 2
		REPLACE EXISTING BRIDGE – WIDEN EAST SIDE
DRAWN BY J. HERRERA	DATE 07-08-08	ADVANCE PLANNING STUDY
CHECKED BY	DATE	JAYE STREET BRIDGE AT TULE RIVER
APPROVED	DATE	BRIDGE NO. 46C-0099 / SCALE AS SHOWN / SHEET 2 OF 2

H:\156385-Portersville\ALT 2 BDR.dwg

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

STRUCTURE TYPE SELECTION MEMO

PROJECT IDENTIFICATION						DATE
Jaye Street Bridge Rehabilitation at Tule River						December 1, 2008
DIST 06	CO Tulare	RTE	KP	CD	EA	DESIGN BRANCH TRC Engineers
SP&Q:				SPS&E:		

Bridge Name	Bridge Number	KP	Construction Cost (Present Day)	Design Hours Required
Jaye Street Bridge(Alt. 1A)	46C0099	n/a	$ 3,216,000	2480
Jaye Street Bridge(Alt. 1B)	46C0099	n/a	$ 3,836,000	2980
Jaye Street Bridge(Alt. 2)	46C0099	n/a	$ 6,564,000	4360
Jaye Street Bridge(Alt. 3)	46C0099	n/a	$ 6,243,000	3470
PROJECT TOTAL				N/A

Brief Project Description:

Jaye Street Bridge is located in the City of Porterville and spans the Tule River. The City of Porterville needs to meet future growth in traffic as a result of adjoining development and is considering either to widen and rehabilitate the existing bridge or to replace it. The new bridge structure will be upgraded from a two lane structure to five lane structure to match the approach roadway width and will have sidewalks and upgraded barriers on both sides. The existing bridge is an eight-span reinforced concrete slab bridge on 1'-6" diameter concrete pile extensions with driven steel H piles. The abutments are diaphragm type supported on driven steel piles.

Two rehabilitation and two replacement alternatives have been examined herein, and costs estimated, to determine the proper course of action based on economic and technical issues. The alternatives include the following and are shown in the Advance Planning Study (APS) attachments. All the alternatives use a cast-in-place (CIP) type of construction. An APS was not prepared for Alternative 3.

Alternatives:

1A. Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge
1B. Widen existing structure both sides – Eight-span CIP reinforced concrete slab bridge
2. Replace existing structure – Three-span CIP prestressed concrete box girder
3. Replace existing structure – Seven-span CIP reinforced concrete slab bridge

(1) DESIGN ENGR Sarvejit Nagi

(2) BR DES SUPV _____

(3) SR BR ARCHIT _____

(4) CHIEF STR DES _____

(5) PROJECT ENGR _____

PROJECT ENGINEER
Todd Lambert

PROJECT AESTHETICS CONSULTANT

Attachments: APS Plans
General Plan Estimates

APPENDIX F

Bridge Alternative Cost Estimates and Summary

BRIDGE ESTIMATE

____ Advance Planning Estimate	PROJECT NO. 156385.0.0 Phase 000100 Task 3
____ General Plan Estimate	Est. By S. NAGI 08/15/2008
x EQ Retrofit Estimate	Chk. By

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone (916) 366-0632 Fax (916) 366-1501

5.0% Forecasted Annual Cost Inflation Rate — 12/15/2010 Date for mid-point of construction period

BRIDGE: Jaye Street Bridge - **Retrofit** — CALTRANS BR NO.: 46C0099 — DISTRICT: 06 — ROUTE: N/A
TYPE: CS Cast-In-Place Reinforced Concrete Slab — COUNTY BR NO.: — COUNTY: TUL — PM:

CU: 06
EA:

DEPTH:	LENGTH:	WIDTH:		AREA:
1.33 ft	241.50 ft	33.75 ft	=	8,151 sq ft

ITEM NO.		CONTRACT ITEMS	UNIT	QUANTITY	UNIT COST	ADJ	PRICE	AMOUNT
1	153210	Remove Concrete	CY	1	$200.00	1.50	$300.00	$300
2	511106	Drill & Bond Dowel	LF	431	$25.00	1.30	$32.50	$14,008
3	511121	Portland Cement Concrete (Patch)	CY	1	$7,700.00	1.00	$7,700.00	$7,700
4	520102	Bar Reinforcing Steel (Bridge)	LB	450	$1.10	1.50	$1.65	$743
5	550110	Column Casing	LB	3,769	$5.50	1.50	$8.25	$31,094

NOTES:

Unit cost based on 2006 CT CCD

SUBTOTAL		$53,844
MOBILIZATION	(@ 10%)	$5,983
SUBTOTAL BRIDGE ITEMS		$59,827
CONTINGENCIES	(@ 25%)	$14,957
BRIDGE TOTAL COST		$74,784
COST PER SQ. FT.	8,151 sq ft	$9.18
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD, UTILITY FORCES, OR OTHERS		
GRAND TOTAL		$74,784
FOR PRESENT DAY COST - USE	08/15/2008	**$75,000**
FOR FUTURE BUDGET PURPOSES - USE	12/15/2010	**$84,000**

BRIDGE ESTIMATE

____ Advance Planning Estimate	PROJECT NO.
x General Plan Estimate	156385.0.0 Phase 000100 Task 3
____ EQ Retrofit Estimate	Est. By S. NAGI 08/15/2008
	Chk. By _____

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone (916) 366-0632 Fax (916) 366-1501

5.0% Forecasted Annual Cost Inflation Rate — 12/15/2010 Date for mid-point of construction period

BRIDGE: Jaye Street Bridge Rehab & Widen **(Alternative 1A)** CALTRANS BR NO.: 46C0099 DISTRICT: 06 ROUTE: N/A
TYPE: CS Cast-In-Place Reinforced Concrete Slab COUNTY BR NO.: COUNTY: TUL PM:

CU: 06
EA:

DEPTH:	LENGTH:	WIDTH:		AREA:
1.42 ft	241.50 ft	45.08 ft	=	10,888 sq ft

	ITEM NO.	CONTRACT ITEMS	UNIT	QUANTITY	UNIT COST	ADJ	PRICE	AMOUNT
1	66105	Resident Engineers Office	LS	1	$12,000.00	1.30	$15,600.00	$15,600
2	129000	Temporary Railing (Type K)	LF	260	$20.00	1.30	$26.00	$6,760
3	153235	Clean Bridge Deck	SQYD	302	$3.50	1.30	$4.55	$1,374
4	192003	Structure Excavation (Bridge)	CY	79	$100.00	1.30	$130.00	$10,307
5	192020	Structure Excavation (Type D)	CY	10	$170.00	1.30	$221.00	$2,292
6	193003	Structure Backfill (Bridge)	CY	61	$110.00	1.30	$143.00	$8,772
7	193030	Pervious Backfill Material	CY	14	$92.00	1.30	$119.60	$1,655
8	208030	6" Supply Line (Bridge)	LF	274	$125.00	1.00	$125.00	$34,188
9	208033	Utilities - 10" water and 12" sewer relocate	LF	547	$150.00	1.00	$150.00	$82,050
10	490508	Furnish Steel Piling (HP 10 X 57)	LF	450	$40.00	1.50	$60.00	$27,004
11	490509	Drive Steel Pile (HP 10 X 57)	EA	10	$2,000.00	1.50	$3,000.00	$30,000
12	490545	Furnish 16" Steel Pipe Piling	LF	1,723	$60.00	1.50	$90.00	$155,083
13	490546	Drive 16" Steel Pipe Pile	EA	42	$2,000.00	1.50	$3,000.00	$126,000
14	510053	Structural Concrete, Bridge	CY	737	$955.00	1.30	$1,241.50	$915,326
15	510087	Structural Concrete, Approach Slab (Type R)	CY	42.23	$1,050.00	1.30	$1,365.00	$57,641
16	510800	Paving Notch Extension	CY	8	$3,900.00	1.30	$5,070.00	$42,819
17	511106	Drill & Bond Dowel	LF	179	$25.00	1.30	$32.50	$5,802
18	515020	Refinish Bridge Deck	SQFT	302	$20.00	1.30	$26.00	$7,849
19	515030	Seal Bridge Deck	SQFT	7,788	$15.00	1.00	$15.00	$116,826
20	520102	Bar Reinforcing Steel (Bridge)	LB	110,332	$1.10	1.30	$1.43	$157,775
21	540109	Furnish Bridge Deck Treatment Material (Low Odor)	GAL	86	$75.00	1.30	$97.50	$8,353
22	721007	Rock Slope Protection (1/4 Ton, Method B)	CY	100	$85.00	1.30	$110.50	$11,066
23	722020	Gabion	CY	395	$460.00	1.30	$598.00	$236,090
24	729002	Filter Fabric (Gabion)	SQYD	296	$6.00	1.30	$7.80	$2,310
25	729010	Rock Slope Protection Fabric	SQYD	150	$7.00	1.30	$9.10	$1,367
26	833078	Pedestrian Railing	LF	483	$150.00	1.30	$195.00	$94,185
27	839717	Concrete Barrier (Type 732 Modified)	LF	483	$120.00	1.30	$156.00	$75,348
28	157560	Bridge Removal (Portion)	LS	1.00	$27,300.00	1.00	$27,300.00	

NOTES:

Unit Cost based on 2006 CT CCD

SUBTOTAL		$2,233,841
MOBILIZATION	(@ 10%)	$248,205
SUBTOTAL BRIDGE ITEMS		$2,482,045
CONTINGENCIES	(@ 25%)	$620,511
BRIDGE TOTAL COST		$3,102,556
COST PER SQ. FT.	10,888 sq ft	$284.96
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$37,917
WORK BY RAILROAD, UTILITY FORCES, OR OTHERS		
GRAND TOTAL		$3,140,473
FOR PRESENT DAY COST - USE	08/15/2008	**$3,141,000**
FOR FUTURE BUDGET PURPOSES - USE	12/15/2010	**$3,520,000**

BRIDGE ESTIMATE

____ Advance Planning Estimate	PROJECT NO. 156385.0.0 Phase 000100 Task 3
x General Plan Estimate	Est. By S. NAGI 08/15/2008
____ EQ Retrofit Estimate	Chk. By

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone (916) 366-0632 Fax (916) 366-1501

5.0% Forecasted Annual Cost Inflation Rate — 12/15/2010 Date for mid-point of construction period

BRIDGE: Jaye Street Bridge Rehab & Widen **(Alternative 1B)** CALTRANS BR NO.: 46C0099 DISTRICT: 06 ROUTE: N/A
TYPE: CS Cast-In-Place Reinforced Concrete Slab COUNTY BR NO.: COUNTY: TUL PM:

CU: 06
EA:

DEPTH:	LENGTH:	WIDTH:		AREA:
1.42 ft	241.50 ft	45.08 ft	=	10,888 sq ft

ITEM NO.		CONTRACT ITEMS	UNIT	QUANTITY	UNIT COST	ADJ	PRICE	AMOUNT
1	66105	Resident Engineers Office	LS	1	$12,000.00	1.56	$18,720.00	$18,720
2	129000	Temporary Railing (Type K)	LF	260	$20.00	1.56	$31.20	$8,112
3	153235	Clean Bridge Deck	SQYD	302	$3.50	1.56	$5.46	$1,648
4	192003	Structure Excavation (Bridge)	CY	79	$100.00	1.56	$156.00	$12,368
5	192020	Structure Excavation (Type D)	CY	10	$170.00	1.56	$265.20	$2,751
6	193003	Structure Backfill (Bridge)	CY	61	$110.00	1.56	$171.60	$10,527
7	193030	Pervious Backfill Material	CY	14	$92.00	1.56	$143.52	$1,986
8	208030	6" Supply Line (Bridge)	LF	274	$125.00	1.20	$150.00	$41,025
9	208033	Utilities - 10" water and 12" sewer relocate	LF	547	$150.00	1.20	$180.00	$98,460
10	490508	Furnish Steel Piling (HP 10 X 57)	LF	450	$40.00	1.80	$72.00	$32,405
11	490509	Drive Steel Pile (HP 10 X 57)	EA	10	$2,000.00	1.80	$3,600.00	$36,000
12	490545	Furnish 16" Steel Pipe Piling	LF	1,723	$60.00	1.80	$108.00	$186,099
13	490546	Drive 16" Steel Pipe Pile	EA	42	$2,000.00	1.80	$3,600.00	$151,200
14	510053	Structural Concrete, Bridge	CY	737	$955.00	1.56	$1,489.80	$1,098,391
15	510087	Structural Concrete, Approach Slab (Type R)	CY	42.23	$1,050.00	1.56	$1,638.00	$69,169
16	510800	Paving Notch Extension	CY	8	$3,900.00	1.56	$6,084.00	$51,383
17	511106	Drill & Bond Dowel	LF	179	$25.00	1.56	$39.00	$6,962
18	515020	Refinish Bridge Deck	SQFT	302	$20.00	1.56	$31.20	$9,419
19	515030	Seal Bridge Deck	SQFT	7,788	$15.00	1.20	$18.00	$140,191
20	520102	Bar Reinforcing Steel (Bridge)	LB	110,332	$1.10	1.56	$1.72	$189,330
21	540109	Furnish Bridge Deck Treatment Material (Low Odor)	GAL	86	$75.00	1.56	$117.00	$10,024
22	721007	Rock Slope Protection (1/4 Ton, Method B)	CY	100	$85.00	1.56	$132.60	$13,280
23	722020	Gabion	CY	395	$460.00	1.56	$717.60	$283,308
24	729002	Filter Fabric (Gabion)	SQYD	296	$6.00	1.56	$9.36	$2,771
25	729010	Rock Slope Protection Fabric	SQYD	150	$7.00	1.56	$10.92	$1,640
26	833078	Pedestrian Railing	LF	483	$150.00	1.56	$234.00	$113,022
27	839717	Concrete Barrier (Type 732 Modified)	LF	483	$120.00	1.56	$187.20	$90,418
28	157560	Bridge Removal (Portion)	LS	1.00	$27,300.00	1.00	$27,300.00	

NOTES:
Estimate marked up by 20% over Alternative 1A for construction over two season.
Unit Cost based on 2006 CT CCD

SUBTOTAL		$2,680,609
MOBILIZATION	(@ 10%)	$297,845
SUBTOTAL BRIDGE ITEMS		$2,978,454
CONTINGENCIES	(@ 25%)	$744,614
BRIDGE TOTAL COST		$3,723,068
COST PER SQ. FT.	10,888 sq ft	$341.96
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$37,917
WORK BY RAILROAD, UTILITY FORCES, OR OTHERS		
GRAND TOTAL		$3,760,984
FOR PRESENT DAY COST - USE	08/15/2008	**$3,761,000**
FOR FUTURE BUDGET PURPOSES - USE	12/15/2010	**$4,215,000**

BRIDGE ESTIMATE

____ Advance Planning Estimate	PROJECT NO. 156385.0.0 Phase 000100 Task 3
x General Plan Estimate	Est. By S. NAGI 08/15/2008
____ EQ Retrofit Estimate	Chk. By _____

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone (916) 366-0632 Fax (916) 366-1501

5.0% Forecasted Annual Cost Inflation Rate — 12/15/2010 Date for mid-point of construction period

BRIDGE: Jaye Street Bridge Replacement **(Alternative 2)** CALTRANS BR NO.: 46C0099 DISTRICT: 06 ROUTE: N/A
TYPE: QB Cast-In-Place Prestressed Concrete Box Girder COUNTY BR NO.: _____ COUNTY: TUL PM: _____

CU: 06
EA: _____

DEPTH:	LENGTH:	WIDTH:		AREA:
4.00 ft	244.00 ft	76.00 ft	=	18,544 sq ft

ITEM NO.		CONTRACT ITEMS	UNIT	QUANTITY	UNIT COST	ADJ	PRICE	AMOUNT
1	000000	Replace Bridge	SQFT	18,544	$250.00	1.00	$250.00	$4,636,000
2	157550	Bridge Removal	LS	1.00	$90,000.00	1.00	$90,000.00	

NOTES:

Unit Cost based on 2006 CT CCD

SUBTOTAL		$4,636,000
MOBILIZATION	(@ 10%)	$515,111
SUBTOTAL BRIDGE ITEMS		$5,151,111
CONTINGENCIES	(@ 25%)	$1,287,778
BRIDGE TOTAL COST		$6,438,889
COST PER SQ. FT.	18,544 sq ft	$347.22
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$125,000
WORK BY RAILROAD, UTILITY FORCES, OR OTHERS		
GRAND TOTAL		$6,563,889
FOR PRESENT DAY COST - USE	08/15/2008	**$6,564,000**
FOR FUTURE BUDGET PURPOSES - USE	12/15/2010	**$7,356,000**

BRIDGE ESTIMATE

____ Advance Planning Estimate	PROJECT NO.
x General Plan Estimate	156385.0.0 Phase 000100 Task 3
____ EQ Retrofit Estimate	Est. By S. NAGI 08/15/2008
	Chk. By

TRC
10680 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone (916) 366-0632 Fax (916) 366-1501

5.0% Forecasted Annual Cost Inflation Rate — 12/15/2010 Date for mid-point of construction period

BRIDGE: Jaye Street Bridge Replacement **(Alternative 3)** CALTRANS BR NO.: 46C0099 DISTRICT: 06 ROUTE: N/A
TYPE: CS Cast-In-Place Reinforced Concrete Slab COUNTY BR NO.: COUNTY: TUL PM:

CU: 06
EA:

DEPTH:	LENGTH:	WIDTH:		AREA:
1.42 ft	241.50 ft	76.00 ft	=	18,354 sq ft

ITEM NO.		CONTRACT ITEMS	UNIT	QUANTITY	UNIT COST	ADJ	PRICE	AMOUNT
1	000000	Replace bridge	SQFT	18,354	$240.00	1.00	$240.00	$4,404,960
2	157550	Bridge Removal	LS	1.00	$90,000.00	1.00	$90,000.00	

NOTES:

Unit Cost based on 2006 CT CCD

SUBTOTAL		$4,404,960
MOBILIZATION	(@ 10%)	$489,440
SUBTOTAL BRIDGE ITEMS		$4,894,400
CONTINGENCIES	(@ 25%)	$1,223,600
BRIDGE TOTAL COST		$6,118,000
COST PER SQ. FT.	18,354 sq ft	$333.33
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$125,000
WORK BY RAILROAD, UTILITY FORCES, OR OTHERS		
GRAND TOTAL		$6,243,000
FOR PRESENT DAY COST - USE	08/15/2008	**$6,243,000**
FOR FUTURE BUDGET PURPOSES - USE	12/15/2010	**$6,997,000**

Alternative Cost Summary

COST COMPONENT	RETROFIT/REHABILITATION ALTERNATIVES		REPLACEMENT ALTERNATIVES	
	1A	1B	2	3
Roadway Subtotal*	$690,386	$683,178	$719,410	$689,410
Earthquake Retrofit	$53,844	$53,844	$0	$0
Bridge (Widen & Rehab or Replace)	$2,233,841	$2,680,609	$4,636,000	$4,404,960
Bridge Subtotal	$2,287,685	$2,734,453	$4,636,000	$4,404,960
Bridge and Roadway Subtotal	$2,978,071	$3,417,631	$5,355,410	$5,094,370
Mobilization (10%)	$330,897	$379,737	$595,046	$566,041
Contingencies (25%)	$827,242	$949,342	$1,487,614	$1,415,103
Bridge and Roadway Total	$4,136,209	$4,746,710	$7,438,069	$7,075,514
Bridge Removal (portion)	$37,917	$37,917	$125,000	$125,000
Total W/Removal Costs	$4,174,126	$4,784,626	$7,563,069	$7,200,514
For Budget Purposes**	**$4,180,000**	**$4,790,000**	**$7,570,000**	**$7,210,000**

Alternative 1B is marked up by 20% over Alternative 1A for two construction seasons

* Roadway costs assume an unchanged profile grade (P.G.) except for Alternative 2 where a 1' increase in P.G. is assumed.

** Cost Estimate as of 8/15/08, add 5% per year for Future Budget Purposes

APPENDIX G

Life Cycle Cost Analysis

JAYE STREET/TULE RIVER BRIDGE
LIFE CYCLE COST ANALYSIS

				BREAK-EVEN ANALYSIS			
Parameter	**Variable**	**Unit**	**Value1**	**Value 2**	**Value 3**	**Value 4**	**Value 5**
General							
Construction Cost Inflation	icc	%	7.00%	4.90%	3.95%	5.90%	3.05%
Discount Rate	id	%	4.00%	4.00%	3.00%	5.00%	2.00%
New Bridge							
Service Life		Years	100	100	100	100	100
Initial Cost	IC	$	$7,570,000	$7,570,000	$7,570,000	$7,570,000	$7,570,000
Maintenance Cost, New	m1	$/year	$1,000	$1,000	$1,000	$1,000	$1,000
Existing Bridge							
Design Service Life		Years	75	75	75	75	75
Remaining Service Life	x	Years	37	37	37	37	37
Initial Rehab Cost	IC	$	$4,180,000	$4,180,000	$4,180,000	$4,180,000	$4,180,000
Maintenance Cost, Exist	m2	$/year	$2,000	$2,000	$2,000	$2,000	$2,000
PV Future Replacement Cost, unadjusted	PR	$	$2,445,188	$2,445,188	$2,445,188	$2,445,188	$2,445,188
Calculation:							
PV, Replacement		$	$7,594,505	$7,594,505	$7,601,599	$7,589,848	$7,613,098
PV, Rehabilitation		$	$11,201,416	$7,561,856	$7,597,366	$7,561,175	$7,625,316

Justification for Construction Cost Inflation Rate

Using data from the Caltrans Constructions Statistics dated 2007 we have added to this table of information an average annual inflation rate, i, using different periods of time as shown in the "Inflation Rate on Construction Costs" table on the next page. Comparing the cost index from 2007 and 1940 there has been an average annual increase of 5.2%. More recently the average annual increase over five years (2002 to 2007) is 9.8% compared to 7.8% for a ten year period (1997 to 2007). Based on this data, we believe 7% is an appropriate value to use for escalating the cost for future bridge construction.

INFLATION RATE ON CONSTRUCTION COSTS

DIVISION OF ENGINEERING SERVICES

BRIDGE CONSTRUCTION COST INDEX

YEAR	1940 BASE INDEX VALUE	1967 BASE INDEX VALUE	1977 BASE INDEX VALUE	2007 n =	i =
1940	100	105	45	67	5.2%
1966	320	105	45		
1967	306	100	43	40	5.8%
1968	306	100	43		
1969	313	102	44		
1970	376	123	53		
1971	398	130	56		
1972	419	137	59	35	5.7%
1973	454	148	64		
1974	689	225	97		
1975	649	212	91		
1976	646	212	91		
1977	710	232	100	30	4.8%
1978	809	266	114		
1979	1093	359	154		
1980	1129	370	159		
1981	1115	366	157		
1982	1058	347	149	25	4.2%
1983	1157	380	163		
1984	1171	384	165		
1985	1186	389	167		
1986	1264	415	178		
1987	1349	443	190	20	4.0%
1988	1398	459	197		
1989	1462	480	206		
1990	1519	499	214		
1991	1484	487	209		
1992	1327	436	187	15	5.4%
1993	1335	438	188		
1994	1619	531	228		
1995	1448	475	204		
1996	1413	464	199		
1997	1391	457	196	10	7.8%
1998	1420	466	200		
1999	1519	499	214		
2000	1753	575	247		
2001	1910	627	269		
2002	1846	606	260	5	9.8%
2003	1888	620	266		
2004	2570	843	362		
2005	3265	1072	460		
2006	3003	985	423		
2007	2939	964	414		

Notes:

1. Bridge Construction Cost Index from Caltrans Constructions Statistics 2007.
2. n = number of years between 2007 and year of index value used.
3. i = average annual cost increase over period of time n.

Appendix B

Air Quality Modeling Results

Road Construction Emissions Model
Data Entry Worksheet

Version 6.3.2

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

Input Type

Project Name	treet Bridge Widening- Bridge Portion	
Construction Start Year	2012	Enter a Year between 2005 and 2025 (inclusive)
Project Type	3	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	12.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.04	miles
Total Project Area	1.6	acres
Maximum Area Disturbed/Day	0.4	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported		yd^3/day
Soil Exported		yd^3/day
Average Truck Capacity	20.0	yd^3 (assume 20 if unknown)

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Jaye Street Bridge Widening- Bridge Portion Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	3.5	15.5	31.3	5.1	1.3	3.8	2.0	1.2	0.8	3,146.0
Grading/Excavation	4.5	20.2	38.1	5.6	1.8	3.8	2.4	1.6	0.8	4,305.0
Drainage/Utilities/Sub-Grade	3.4	14.5	27.3	5.2	1.4	3.8	2.1	1.3	0.8	2,916.9
Paving	2.1	7.9	12.1	1.1	1.1	-	1.0	1.0	-	1,137.0
Maximum (pounds/day)	4.5	20.2	38.1	5.6	1.8	3.8	2.4	1.6	0.8	4,305.0
Total (tons/construction project)	0.5	2.2	4.0	0.6	0.2	0.4	0.3	0.2	0.1	442.9

Notes:

Project Start Year ->	2012
Project Length (months) ->	12
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	0
Total Soil Imported/Exported (yd^3/day)->	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Jaye Street Bridge Widening- Bridge Portion Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.6	7.1	14.2	2.3	0.6	1.7	0.9	0.5	0.4	1,430.0
Grading/Excavation	2.1	9.2	17.3	2.5	0.8	1.7	1.1	0.7	0.4	1,956.8
Drainage/Utilities/Sub-Grade	1.6	6.6	12.4	2.4	0.6	1.7	0.9	0.6	0.4	1,325.9
Paving	0.9	3.6	5.5	0.5	0.5	-	0.4	0.4	-	516.8
Maximum (kilograms/day)	2.1	9.2	17.3	2.5	0.8	1.7	1.1	0.7	0.4	1,956.8
Total (megagrams/construction project)	0.5	2.0	3.7	0.6	0.2	0.4	0.2	0.2	0.1	401.7

Notes:

Project Start Year ->	2012
Project Length (months) ->	12
Total Project Area (hectares) ->	1
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L..

Road Construction Emissions Model
Data Entry Worksheet

Version 6.3.2

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

Input Type		
Project Name	t Bridge Widening - Roadway Approaches	
Construction Start Year	2012	Enter a Year between 2005 and 2025 (inclusive)
Project Type	2	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	12.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.2	miles
Total Project Area	1.6	acres
Maximum Area Disturbed/Day	0.4	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported		yd^3/day
Soil Exported		yd^3/day
Average Truck Capacity	20.0	yd^3 (assume 20 if unknown)

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Jaye Street Bridge Widening - Roadway Approaches Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	3.7	16.0	31.8	4.9	1.3	3.6	2.0	1.2	0.7	3,201.1
Grading/Excavation	4.0	18.3	32.2	5.2	1.6	3.6	2.2	1.5	0.7	3,619.9
Drainage/Utilities/Sub-Grade	3.6	15.0	27.7	5.0	1.4	3.6	2.1	1.3	0.7	2,971.9
Paving	2.2	8.4	12.5	1.1	1.1	-	1.0	1.0	-	1,192.0
Maximum (pounds/day)	4.0	18.3	32.2	5.2	1.6	3.6	2.2	1.5	0.7	3,619.9
Total (tons/construction project)	0.5	2.1	3.7	0.6	0.2	0.4	0.3	0.2	0.1	406.2

Notes:

Project Start Year ->	2012
Project Length (months) ->	12
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	0
Total Soil Imported/Exported (yd^3/day)->	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Jaye Street Bridge Widening - Roadway Approaches Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	1.7	7.3	14.4	2.2	0.6	1.6	0.9	0.5	0.3	1,455.0
Grading/Excavation	1.8	8.3	14.7	2.4	0.7	1.6	1.0	0.7	0.3	1,645.4
Drainage/Utilities/Sub-Grade	1.6	6.8	12.6	2.3	0.7	1.6	0.9	0.6	0.3	1,350.9
Paving	1.0	3.8	5.7	0.5	0.5	-	0.5	0.5	-	541.8
Maximum (kilograms/day)	1.8	8.3	14.7	2.4	0.7	1.6	1.0	0.7	0.3	1,645.4
Total (megagrams/construction project)	0.4	1.9	3.4	0.5	0.2	0.4	0.2	0.2	0.1	368.4

Notes:

Project Start Year ->	2012
Project Length (months) ->	12
Total Project Area (hectares) ->	1
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Appendix C

Biological Reports

Appendix C1

Natural Environment Study

Jaye Street Bridge Replacement
NES

Tule River

Jaye Street (Road 244)

District 6

City of Porterville, Tulare County, California

April 2012

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Natural Environment Study

Jaye Street Bridge Replacement Project

Tule River

Jaye Street (Road 244)

District 6

City of Porterville, Tulare County, California

April 2012

STATE OF CALIFORNIA
Department of Transportation
City of Porterville

Recommended for
Approval By: _____ Date: _____

Southern San Joaquin Valley Environmental Management Branch
Caltrans District 6

Approved By: _____ Date: _____
Kelly Hobbs, Environmental Branch Chief
(559) 445-5286
Southern San Joaquin Valley Environmental Management Branch
Caltrans District 6

Summary

PROJECT DESCRIPTION

The California Department of Transportation (Caltrans), in cooperation with the City of Porterville is proposing to widen the current Jaye Street Bridge (Bridge No. 46C0099) over the Tule River on Jaye Street (Road 244). The existing structure was built in 1970 and is an eight-span reinforced concrete slab type bridge 241.5 feet in length with two traffic lanes. The piers consist of five, 1.5-foot diameter concrete pile extensions attached by a concrete collar to steel H-piles with 70 ton service design load. The abutments are diaphragm type supported on steel H-piles with 70 ton service design load. The project consists of rehabilitating or replacing the existing bridge to widen from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The bridge would include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches would also be widened from two lanes to four lanes to tie into the existing 4 lane sections of Jaye Street north of the bridge (at Date Avenue) and south of the bridge (at Springville Avenue). The area of potential affect includes the bridge approaches and staging areas. The approaches are proposed to be re-aligned and restriped from two-lanes to four-lanes to tie into the existing four-lane roads that currently exist at the Date Avenue intersection to the north and south of the bridge at Springville Avenue. Potential improvements to the approaches would include realignment, overlay, restriping, and shoulder work within the existing right-of-way.

PROJECT LOCATION

The proposed project is located in the south central portion of Tulare County in the City of Porterville. The project site is situated on Jaye Street, approximately 0.30 miles south of Date Avenue and 0.40 miles north of State Route 190 (SR-190). The Jaye Street Bridge crosses the Tule River, and serves to connect the arterial north-south roadway. The latitude and longitude of the existing bridge are 36°3’23” North and 119°1’35” West, respectively. These coordinates are within the Southwest ¼ of the Northwest ¼ of the Southeast ¼ of Section 35 in Township 21 South, Range 27 East on the Porterville United States Geological Survey (USGS) 7 ½ minute quadrangle. The project includes portions of eight parcels: 260-320-027, 260-320-031, 260-320-032, 260-320-010, 260-320-029, 260-320-026, 260-020-014, and 260-020-015. Elevation on the site is approximately 453 feet above mean sea level (AMSL).

PURPOSE AND NEED

The project's purpose and need are to replace the existing two-lane bridge, which has been deemed structurally deficient by the Caltrans Area Bridge Maintenance Engineer and is not adequate to handle existing and projected traffic volumes on Jaye Street.

DESIGN ALTERNATIVES

Several design alternatives are being considered which include the following:

1. Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge
2. Widen existing structure Both sides – Eight-span CIP reinforced concrete slab bridge
3. Replace existing structure – Three-span CIP prestressed concrete box girder
4. Replace existing structure – Seven-span CIP reinforced concrete slab bridge

Depending on the design alternative selected, the bridge would ultimately be approximately 80 feet wide. Existing structure components would be reused to the greatest extent feasible.

THE BIOLOGICAL STUDY AREA

The Biological Study Area (BSA) for the proposed project includes the existing Jaye Street Bridge (Road 244), 1,000 feet to the east and west of the bridge, the bridge approaches, and 100 feet on either side of the bridge approaches. The project footprint is about 3.9 acres.

IN-OFFICE RESEARCH

Prior to conducting field surveys an in office review of literature resources was conducted to determine if the BSA is located within the range of sensitive biological resources such as state and/or federally-listed threatened and/or endangered species. A list of special-status species that could potentially occur in the BSA and a ten mile radius of the BSA was compiled (Table 1) by accessing the California Natural Diversity Database (CNDDB) (2011) (Appendix A), the California Native Plant Society (CNPS) (2011) online inventory and the United States Fish and Wildlife

Service (USFWS) online database (accessed September 2011) (Appendix D) for the USGS 7.5-minute quadrangle of Porterville in which the BSA is located as well as the eleven surrounding quads of Gibbon Peak, Fountain Springs, Ducor, Sausalito School, Springville, Frazier Valley, Success Dam, Globe, Lindsay, Cairn's Corner, and Woodville.

BIOLOGICAL SURVEYS

An initial biological survey of the BSA, including a botanical survey, a bird and animal survey, and nesting bird survey was conducted on May 5, 2008 by Biologist Gene Moise. The north and south banks of the Tule River were walked approximately 1,000 feet to the east and west of the bridge. The underside of the bridge was inspected for potential roosting bats and nesting swallows. Trees along the riparian zone and within the project site were inspected for raptor nests, and blue elderberry plants were located. A second survey was conducted on June 13, 2008 to continue the elderberry shrub survey. A final biological survey was conducted on September 27, 2011 to identify: (1) elderberry plants within the project footprint and a 100-foot radius of the project footprint, (2) nesting raptors within 1,000 feet of the project area, (3) swallow nests located under the bridge, and (4) bats roosting under the bridge.

VEGETATION

The BSA is primarily urban outside of the riparian zone and adjacent parkway and disturbed areas along the river. In the vicinity of the Jaye Street Bridge, the riparian vegetation found along the river is Great Valley Mixed Riparian Forest (GVMRF). This is a tall, dense, winter-deciduous broadleafed riparian forest which is fairly well-closed. The overstory and midstory consists of willow (*Salix sp*.), cottonwood (*Populus fremontii*), and elderberry (*Sambucus Mexicana*). The understory is dominated by wild grape (*Vitis sp*.) and blackberry (*Rubus sp*.). The GVMRF is usually associated with low-gradient, depositional streams of the Great Valley, usually below 500 feet AMSL, with fine-textured alluvial soils in areas with occasional overbank flooding. Herbaceous vegetation near the ordinary high-water line of the river (OHWM) included stinging nettle (*Urtica dioica*), monkeyflower (*Mimulus guttatus*), while upslope the herbaceous layer was dominated by ripgut (*Bromus diandrus*) and red brome (*Bromus madritensis*).

Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*) an invasive, noxious weed, were found to the east of the bridge along the south bank of the river. Portions

of the rather steep channel banks near the bridge were dressed in riprap, and the in-stream habitat was generally degraded in this portion of the river.

The Tule River Parkway parallels the river on the terrace above the south bank. This city-maintained trail has planted willows and oaks and non-native ornamental trees and shrubs along a paved path which extends for several hundred meters to the east of the Jaye Street Bridge, and the paved portion terminates with a large parking area to the immediate southwest of the bridge. Ruderal vegetation characteristic of disturbed lands dominates the north bank of the river to the east of the bridge, while to the west is GVMRF. Away from the river, the narrow riparian corridor is flanked by the urban landscape of the City of Porterville.

SENSITIVE NATURAL COMMUNITIES

GVMRF is considered a sensitive natural community by the California Department of Fish and Game (CDFG). According to the CNDDB, two other sensitive natural communities occur within 10 miles of the BSA. Northern Claypan Vernal Pool occurs three miles southeast of the BSA and Sycamore Alluvial Woodland occurs seven miles east of the BSA.

Impacts

- Construction within the BSA will remove or disturb GVMRF.
- Permanent impacts would result from the removal of cottonwoods and red willows as necessary to accommodate the project.
- Temporary impacts include trimming of cottonwoods and red willows during bridge improvements.

Avoidance and Minimization Measures:

Impacts to GVMRF and to other trees and shrubs will be avoided by installing Environmentally Sensitive Area (ESA) fencing around all riparian vegetation that can be avoided.

A biological monitor will oversee installation of the ESA fencing and will ensure maintenance of the ESA fencing during construction on a weekly basis.

Pre-construction training of all on-site workers

All on-site contractors and construction workers, including supervisors and inspectors shall attend a worker training and awareness program. At a minimum, the training program shall include discussions regarding the importance and status of the GVMRF and the ESA fencing. The construction workers shall be made aware of their roles and responsibilities in implementing the project protection measures and other requirements.

Construction activities shall be monitored on a weekly basis by a qualified biological monitor to ensure that all construction fencing and exclusionary fencing is appropriately maintained and that all other measures are fully and faithfully implemented. The biological monitor and the construction team shall work cooperatively to ensure that all measures are effective. The biological monitor shall be on-call to assist with any issues which may arise (such as the "take" of a sensitive species). The biological monitor shall discuss any infractions of the measures with the construction contractor, remedial actions shall be implemented when needed, and solutions shall be devised to prohibit subsequent infractions.

A monthly progress report shall be prepared by the biological monitor, which shall be submitted to the CDFG. That report shall include dates of construction, types of construction activities occurring, descriptions of the measures that were implemented, infractions that occurred, and descriptions of any remedial actions that were taken. A final report shall be submitted once all construction has been completed and site restoration has been completed.

Mitigation

- Permanent and temporary impacts to GVMRF will be mitigated by implementing a GVMRF Revegetation and Restoration Plan which will be developed in consultation with the CDFG.

- Compensatory Mitigation for impacts to GVMRF may also be required and will be determined during consultation with the CDFG.

SPECIAL STATUS PLANT SPECIES

Eighteen special status plant species are known to occur in the BSA or within a 10 mile radius of the BSA (Table 1). The BSA does not include suitable habitat for any special status plant species and none were observed during the surveys. They are

considered absent from the BSA. No avoidance, minimization or mitigation measures are required for the protection of special status plant species.

SPECIAL STATUS WILDLIFE SPECIES

Twenty-eight special-status wildlife species are known to occur in the BSA or within a ten mile radius of the BSA (Table 1). Of these 28 species, it was determined that seven have the potential to occur in or immediately adjacent to the BSA and the BSA was specifically evaluated for these seven species. They are the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Bald eagle (Haliaeetus leucocephalus), Swainson's hawk (*Buteo swainsoni*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), American Badger (*Taxidea taxus),*and San Joaquin kit fox (*Vulpes macrotis mutica).* No special status wildlife species were observed in the BSA during the surveys. Based upon the field investigations performed, it was determined that the BSA may support these special status wildlife species. These species were determined to be absent from the BSA at the time surveys, but could move into the BSA at any time.

Valley elderberry longhorn beetle

Elderberries are the exclusive habitat for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; VELB), a federally threatened species. Any elderberry with one or more stems that are > 1 inch in diameter are considered to be potential habitat for VELB. Twenty-three elderberry shrubs with one or more stems > 1 inch in diameter are situated within the project footprint or within 100 feet of the project footprint. Eight elderberry shrubs are located within the project footprint, two elderberry shrubs located within 20 feet of the project footprint, and thirteen elderberry shrubs are located between 20 and 100 feet of the project footprint. One elderberry shrub is located outside of the 100 foot encroachment area but was included because of its close proximity to the project site. Potential exit holes were found on seven of the elderberry shrubs, three of which are located within 20 feet of the project site, and three of which are between 20 and 100 feet of the project site. No VELB were observed during the field surveys and it is possible that these exit holes were created by other wood boring insects, however because the BSA contains exclusive habitat for the species, they are assumed to be present.

Avoidance and Minimization Measures:

Thirteen elderberry shrubs are located between 20 and 100 feet from the project site. Implementation of the following avoidance and minimization measures will reduce or avoid impacts to VELB:

- Prior to the initiation of ground disturbance, a 4 foot tall, high visibility, temporary exclusionary fence will be installed at the maximum distance feasible for construction occurring within the 100 foot buffer of the elderberries remaining within the work area.
- If any elderberries will be encroached upon within 100 feet, an exclusion fence will be placed no closer than 20 feet from the drip line of the elderberry.
- Any elderberry shrubs that will be encroached upon within 20 feet will be considered to be impacted.
- No work will be conducted within the established exclusion zones. In addition, all vehicle operations will be minimized around these shrubs.
- All equipment will be staged away from the elderberry shrubs, in previously disturbed areas.
- Signs that designate the buffer areas as VELB habitat, and that describe the federal protection status of the species, should be erected every 50 feet along the edge of the avoidance areas
- A qualified biologist, skilled in the identification and habitat needs of the valley elderberry longhorn beetle, shall be present to monitor compliance with avoidance of all elderberries not transplanted or trimmed. The biological monitor shall be present anytime work is conducted in the vicinity of the elderberry shrubs, including trimming and transplanting. If, at any time, elderberry shrub impact avoidance measures are not followed, the biologist shall be given the power to suspend construction operations until such activities are corrected and an alternate course of action is taken that ensures no impacts to the elderberry shrubs will occur.
- Within 30 days after the completion of the project, a compliance report letter that documents the results of the implementation of mitigation measures will be completed and submitted to USFWS.

- Prior to the initiation of ground disturbing activities, a qualified biologist will conduct threatened and endangered species training. Personnel that will be working in the project site will be trained in the life history, habitat requirements, protection status, impact avoidance measures, and penalties under the federal endangered species act for unauthorized take of the Valley elderberry longhorn beetle. A written handout will be provided to construction personnel that will include the above-mentioned information, illustrations and photographs of pertinent aspects of valley elderberry beetle life history. All personnel conducting work in the project site will be required to attend the training prior to working on site. A signup sheet will be maintained that provides written verification of all training meeting attendees.

- All vehicles and equipment entering the project site will be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of off the project site. All construction materials will be staged away from all elderberry shrubs and any spills will be cleaned immediately. No herbicides, fertilizers or other chemicals that may harm the elderberry shrubs shall be used within 100 feet of the shrubs.

- Construction will permanently alter the portions of the 100-foot buffer zones within the work area surrounding the project. Following construction, areas within the buffer zones will be restored to the extent feasible.

Swainson's hawk

Although habitat within the BSA is suitable to support this species, there were no Swainson's hawks observed in the vicinity of the BSA during the site surveys. Nonetheless, the Swainson's hawk is known to occur in low numbers in the southern San Joaquin Valley and it could occur on or near the project site as an occasional transient forager.

Avoidance and Minimization Measures:

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and

potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG.

- All trees which are suitable for Swainson's hawk nesting that are within 2,640 feet of construction activities shall be inspected for nests by a qualified biologist.
- If potential Swainson's hawk nests are located, surveys to determine whether Swainson's hawks use those nests will be determined by conducting surveys at the following intensities, depending upon dates of initiation of construction:

Construction start	Survey period	Number of surveys	Timing
1 January to 20 March	1 January to 20 March	1	All day
21 March to 24 March	1 January to 20 March	1	All day
	21 March to 24 March	Up to 3	Sunrise to 1000 and 1600 to sunset
24 March to 5 April	1 January to 20 March	1	All day
	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
6 April to 9 April	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 9 April	Up to 3	Sunrise to 1000 and 1600 to sunset
	1 January to 20 March	1 (if all 3 surveys are performed between 6 and 9 April, then this survey need not be conducted)	All day
10 April to 30 July	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 20 April	3	Sunrise to 1200 and 1630 to sunset
31 July to 15 September	6 to 20 April	3	Sunrise to 1200 and 1630 to sunset
	10 to 30 July	3	Sunrise to 1200 and 1600 to sunset

A nest can be eliminated as a potential Swainson's hawk nest if another species of raptor is using the nest.

- If Swainson's hawks are detected to be nesting in trees within 600 feet of the construction area, construction will not occur within this zone until after young Swainson's hawks have fledged (this usually occurs by early June). The nest will be monitored by a qualified biologist to determine fledging date. If Swainson's hawks are found within the project area, the project site would be considered foraging habitat and compensation for foraging habitat would be required by CDFG at a ratio of 0.75 to 1 (0.75 acre for every 1.0 acre adversely affected); and

- If other raptors are found nesting within 250 feet of the construction area, construction will be postponed until after young have fledged. The date of fledging will be determined by a qualified biologist. If construction cannot be delayed within this zone, the CDFG will be consulted and alternative protection measures required by the CDFG will be followed.

- The removal of trees shall not occur during the breeding season (February 1st to September 15th). Trees slated for removal during the breeding season shall be surveyed by a qualified biologist prior to removal to ensure that there are no nesting birds occupying the tree.

American Badger

No sign of badgers were found during field surveys. No dens were observed in the project vicinity. If badgers utilize the project area, it is likely to be as transients.

Avoidance and Minimization Measures:

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the American badger. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways. Nighttime

construction shall be avoided, unless the construction area is appropriately fenced to exclude American badger. The area within any such fence must be determined to be uninhabited by American badger prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of badgers or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured badger is discovered, the procedures in this section must be followed.

- Badgers are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.

- No firearms shall be allowed on the project site.

- To prevent harassment, mortality of badgers or destruction of dens by dogs or cats, no pets shall be permitted on the project site.

- 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 badger, or who finds a dead, injured or entrapped individual. The representative's name and telephone number shall be provided to the USFWS and CDFG.

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice.

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures an American badger shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist.

- The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to an American badger 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

Bats

Marginal foraging habitat exists within the BSA for bats. No bats or potential roosting habitat for bats was observed under the bridge. The bridge has a flat bottom and therefore is structurally lacking in areas that would offer optimal roosting opportunities for bats. Therefore, day or night roosting bats are not likely to use this bridge. Nevertheless, out of an abundance of caution pre-construction surveys for bats shall be implemented. The project will not result in impacts to bats, unless bats are found during pre-construction surveys.

Avoidance and Minimization Measures:

- Pre-construction surveys for bats of the bridge by a qualified biologist are required prior to bridge removal to ensure that bats have not moved into the bridge.

- If bats are found to occupy the bridge during pre-construction surveys, a bat eviction and mitigation plan has to be prepared in consultation the CDFG. In this event the existing bridge cannot be removed until all bats have been successfully

evicted and adequate mitigation measures, such as bat houses or a bat friendly bridge design, have been approved by the CDFG.

San Joaquin kit fox

No signs of kit fox was found during site surveys. It is unlikely San Joaquin kit fox would utilize this site because they tend to avoid riparian area due to potential competition from other predators and they are typically a grassland and open habitat species. However, they may be present on the site as a transient forager.

Avoidance and Minimization Measures:

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit fox. The area within any such fence must be determined to be uninhabited by San Joaquin kit fox prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such 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 procedures in this section must be followed.

- San Joaquin kit fox are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.

- No firearms shall be allowed on the project site.

- To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on the project site.

- 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 individual. The representative's name and telephone number shall be provided to the USFWS and CDFG.

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice.

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist.

- The Sacramento Fish and Wildlife Office and CDFG will 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

INVASIVE PLANT SPECIES

Two invasive plant species were observed in the BSA. The species found within the BSA are Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*). These species were found to the east of the bridge along the south bank of the river. In order to prevent the introduction and spread of invasive plants in the BSA, the following measures are recommended:

Avoidance and Minimization Measures:

- Wash all vehicles and heavy equipment, including tires and undercarriage, and hand held tools such as shovels and rakes, which have been used off-site before bringing them into the BSA
- Vacuum and clean the interior of vehicles and heavy equipment that have been used off-site before bringing them into the BSA
- Clean personal gear and clothing, including footwear that have been worn off-site before bringing them into the BSA
- Do not transport soil or other fill material from off-site locations unless it is known that they do not contain viable seed material
- Use only approved seeds and seedlings when restoration is required. Prepare soils appropriately to encourage new seeds and plants to survive
- Import only certified weed-free material for temporary erosion control, such as sterile straw wattles or weed-free, sterile rice straw.

MIGRATORY BIRDS

Migratory birds, including raptors such as red-tailed hawks (*Buteo jamaicensis*) and coopers hawks (*Accipiter cooperii*) could nest in the riparian corridor along the Tule River. Cliff swallows (*Petrochelidon pyrrhonota*) are also considered migratory birds. During the 27 September 2011 survey, two Cooper's hawks (*Accipiter*

cooperii), one juvenile and one adult, were observed within the project vicinity. Both were initially perched in a willow tree within 1,000 feet of the project site, but they were also observed flying throughout the project site. One potential nest was located in a cottonwood tree (*Populus fremontii*) on the southwest corner of the project site on the bank of the Tule River. The adult Cooper's hawk was observed perching in this tree. However, this tree was leafed out making it difficult to differentiate between a raptor nest and mistletoe. There is habitat present that could potentially support the State protected Swainson's hawk. Also during the 27 September 2011 survey, swallow nests were observed attached to the underside of the Jaye Street Bridge. No swallows were observed during the surveys, but swallows are migratory and generally do not return to the San Joaquin valley until approximately mid-March. It is likely that swallows will inhabit the nests under the bridge from March through August or September. Most of the nests did appear to have been recently used, likely as recently as the last nesting season. Tree or structure removal or nearby construction could adversely affect raptors and other nesting migratory birds that have established themselves in the BSA, and bridge reconstruction or demolition could impact nesting swallows, if swallows attempt nesting on the bridge.

Avoidance and Minimization Measures:

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG. The CDFG may need to be contacted to determine the appropriate buffer and a biologist may need to monitor the nesting activity to ensure proper avoidance measures have been implemented.

- Any trees scheduled for removal during the nesting season from February 15th to September 1st must first be inspected by a qualified biologist prior to removal. Active nest trees cannot be removed until nesting has been completed or removal has been deemed permissible by a biologist

It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.

- If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.
- Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated.
- Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be used.
- Weekly scalping, between February 15 and September 1, of partially completed nests is permitted to discourage nesting.
- If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

PERMITS

- A Section 1602 Streambed Alteration Agreement will be required from the CDFG because the project will involve work in the bed, bank or channel of the Tule River.
- A Regional Water Quality Control Board (RWQCB) Section 401 of the Clean Water Act (CWA) Permit will be required because work will occur below the OHWM of the Tule River.
- An Army Corps of Engineers (ACOE) Section 404 of the CWA Permit will be required because impacts to Waters of the United States will exceed 0.5 acres.
- Consultation with the ACOE regarding impacts to wetlands is not required as no wetlands occur in the BSA.
- Consultation under Section 7 of the Federal Endangered Species Act (FESA) will be required as the proposed project will result in impacts to federally listed threatened or endangered species.

- Consultation under Section 2081 of the California Endangered Species Act (CESA) may be required if the CDFG feels that avoidance and minimization measures are not adequate to prevent impacts to state listed threatened or endangered species.

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List of Abbreviated Terms

Abbreviation	Agency or Term
ACOE	Army Corps of Engineers
AMSL	Above Mean Sea Level
BSA	Biological Study Area
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DBH	Diameter at breast height
EO	Executive Order
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
GVMRF	Great Valley Mixed Riparian Forest
IS	Initial Study
MBTA	Migratory Bird Treaty Act
MLS	Mean Sea Level
MND	Mitigated Negative Declaration
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
ROW	Right-of-way

RWQCB	Regional Water Quality Control Board
SR	State Route
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WOUS	Waters of the United States

Chapter 1. Introduction

1.1. Project History

1.1.1. Project Purpose

The purpose of the proposed project is to widen the existing, deficient Jaye Street Bridge on Jaye Street (Road 244) in the City of Porterville, Tulare County.

1.1.2. Project Need

The bridge has been deemed to be structurally deficient by the Caltrans Area Bridge Maintenance Engineer and is not adequate to handle existing and projected traffic volumes on Jaye Street.

1.2. Project Description

The California Department of Transportation (Caltrans), in cooperation with the City of Porterville is proposing to widen the current Jaye Street Bridge (Bridge No. 46C0099) over the Tule River on Jaye Street (Road 244). The project consists of rehabilitating or replacing the existing bridge to widen from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The bridge would include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches would also be widened from two lanes to four lanes to tie into the existing four lane sections of Jaye Street north of the bridge (at Date Avenue) and south of the bridge (at Springville Avenue). The approaches are proposed to be re-aligned and restriped from two lanes to four lanes to tie into the existing four lane roads that currently exist at the Date Avenue intersection to the north and south of the bridge prior to Springville Avenue. Potential improvements to the approaches would include realignment, overlay, restriping, and shoulder work within the existing right-of-way (ROW).

1.2.1. Project Location

The proposed project is located in the south central portion of Tulare County in the City of Porterville (Figure 1). The project site is situated on Jaye Street, approximately 0.30 miles south of Date Avenue and 0.40 miles north of State Route 190 (SR-190). The Jaye Street Bridge crosses the Tule River, and serves to connect the arterial north-south roadway. The latitude and longitude of the existing bridge are 36°3'23" North and 119°1'35" West, respectively. These coordinates are within the Southwest ¼ of the Northwest ¼ of the Southeast ¼ of Section 35 in Township 21 South, Range 27 East on the Porterville United States Geological Survey (USGS) 7 ½ minute quadrangle. The project includes portions of eight parcels: 260-320-027, 260-320-031, 260-320-032, 260-320-010, 260-320-029, 260-320-026, 260-020-014, and 260-020-015. Elevation on the site is approximately 453 feet above mean sea level (AMSL). The project impact area is shown in Figure 2.

1.2.2. Bridge Widening Alternatives

The Jaye Street Bridge Widening Project consists of replacing or rehabilitating the existing bridge to widen from two lanes to four lanes over the Tule River and reconstruction and realignment of the street approaches. The bridge would include a shared left turn lane and sidewalks on both sides of the bridge. Several design alternatives are being considered which include the following:

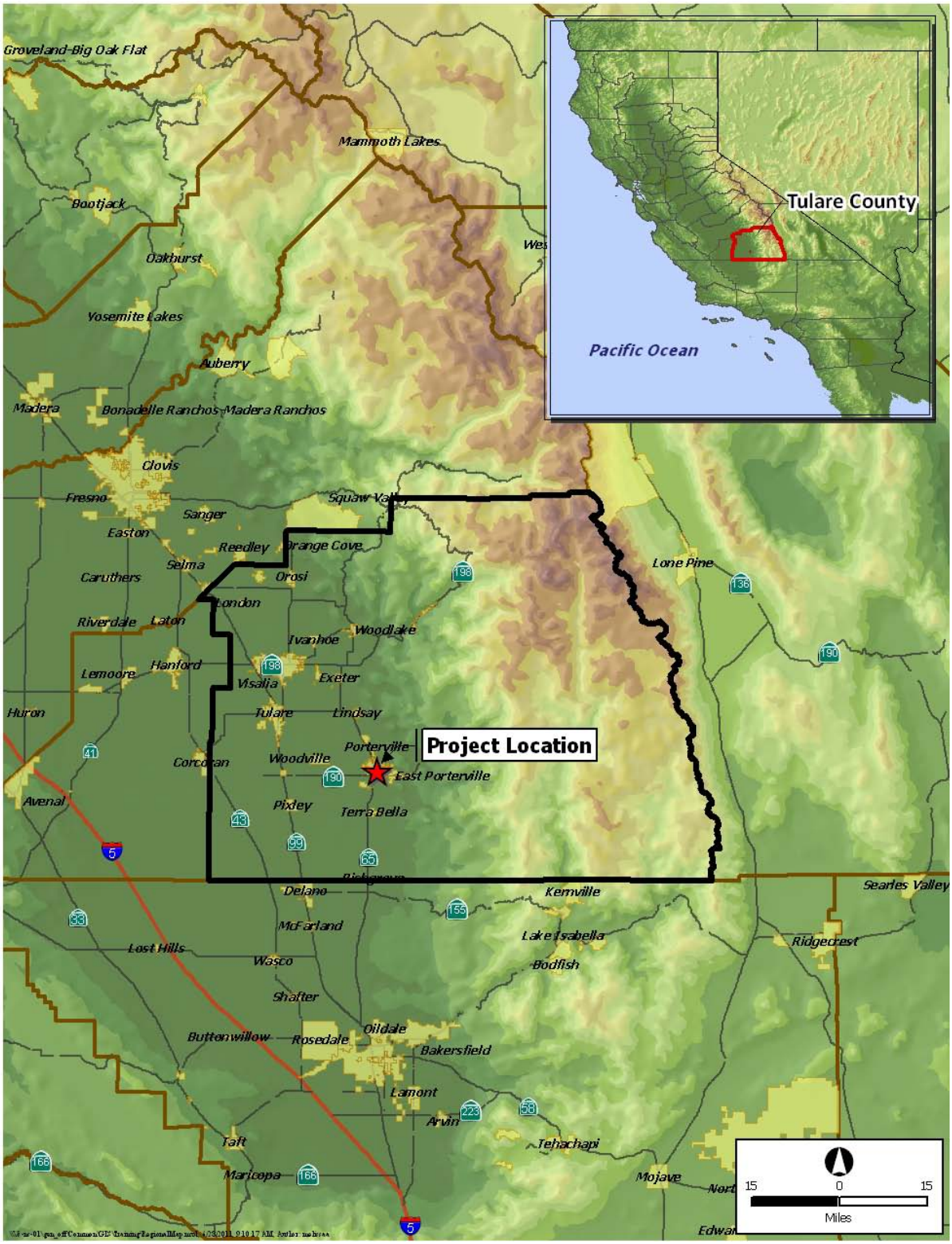
1. Widen existing structure East side – Eight-span CIP reinforced concrete slab bridge

2. Widen existing structure Both sides – Eight-span CIP reinforced concrete slab bridge

3. Replace existing structure – Three-span CIP prestressed concrete box girder

4. Replace existing structure – Seven-span CIP reinforced concrete slab bridge

Depending on the design alternative selected, the bridge would ultimately be approximately 80 feet wide. Existing structure components would be reused to the greatest extent feasible.



REGIONAL LOCATION
JAYE STREET BRIDGE

Figure 1

PROJECT IMPACT AREA
JAYE STREET BRIDGE

Figure 2

1.2.3. Bridge Approaches

Since funding may allow for road improvements on the north and south road approaches, the area of potential affect includes the bridge approaches, which would be widened from two lanes to four lanes to tie into the existing four lane sections of Jaye Street north of the bridge to Date Avenue and south of the bridge to Springville Avenue. Potential project improvements also include sidewalk and intersection improvements at the Jaye Street and Date Avenue intersection. The improvements would eliminate the existing "bottleneck" conditions in the vicinity of the bridge.

1.2.4. Vehicular traffic access/staging

In order to maintain vehicular traffic, construction of the project would need to be staged for all alternatives. Traffic will use the existing bridge during Stage One with one traffic lane open in each direction while a portion of the bridge is constructed. During Stage Two, the traffic would be moved onto the new portion while the other is worked on. A closure pour would be completed at the end of Stage Two construction to attach the two structures.

1.2.5. Project schedule

Since road closure is not permitted by the City, construction would likely need to occur over two seasons. It is anticipated that riverbed access would occur during the low flow season (typically June – October) or as permitted by the regulatory agencies.

1.2.6. Construction Equipment

Typical road and bridge construction equipment would include bull dozers, pile driving or drilling rig (Baker tanks if CIDH Concrete Piles are used), backhoes, excavators, scrapers, trucks, cranes, air compressors, graders, forklifts, ready-mix trucks, concrete pumps, bridge deck finishing machine, HMA pavers, rollers, pavement striper, and worker vehicles.

1.2.7. Construction Staging

The construction contractor would likely use a combination of existing bridge approach shoulders, fallow areas adjacent to the roadway to the north, and adjacent to

the Tule River Parkway driveway (southwest), and/or other areas that can be secured to store equipment and materials. Any temporary staging area would be reclaimed to conditions equivalent to existing conditions after project construction has been completed.

1.2.8. Biological Study Area

The Biological Study Area (BSA) for the proposed project includes the existing Jaye Street Bridge (Road 244), 1,000 feet to the east and west of the bridge, the bridge approaches, and 100 feet on either side of the bridge approaches. The project footprint is about 3.9 acres.

Chapter 2. Study Methods

2.1. Regulatory Requirements

The primary regulations affecting biological resource impacts are discussed in this section. If construction of this project, or related activities associated with construction, impact federal- and/or state-listed species, the project may be subject to the California Endangered Species Act (CESA) and the Federal Endangered Species Act (FESA). If activities directly impact migratory birds or cause the destruction or abandonment of nests, the project would be subject to the Migratory Bird Treaty Act (MBTA). Additional regulations could also apply to the project. The following paragraphs provide a brief summary of the applicable provisions of these regulations.

2.1.1. Federal Endangered Species Act

The FESA protects federally-listed threatened and endangered species. Section 9 of FESA prohibits actions which result in “take” of threatened or endangered species. “Take” generally includes killing, harming, or harassment of listed species. “Harm” has been further defined to include killing or injuring due to significant obstruction of essential behavior patterns (i.e. breeding, feeding, or sheltering) through significant habitat modification or degradation.

Two sections of the FESA contain provisions for allowing “take” which is incidental to otherwise lawful activities. Under Section 7, a federal agency which proposes to conduct, fund or approve an action which may result in “take” of listed species is required to consult with the United States. Fish and Wildlife Service (USFWS). The result of this formal consultation is a Biological Opinion, which includes either a jeopardy or non-jeopardy decision issued by USFWS to the consulting federal agency. Included in the Biological Opinion is the possible issuance of authorization for “incidental take”. Section 10(a) of FESA provides a method for permitting a state or private action that may result in “incidental take”. Under Section 10(a), the project proponent must provide the USFWS with a Habitat Conservation Plan for the affected species, and publish notification of the application for a permit in the Federal Register.

2.1.2. State Endangered Species Act

The CESA incorporates provisions that permit impacts to California-listed rare, threatened, or endangered species. Those provisions are similar to, but not identical to provisions in the FESA in that there is a permitting process.

2.1.3. Migratory Bird Treaty Act

The MBTA prohibits the destruction of nests, eggs, and/or young of all designated migratory bird species. With very limited exceptions, all birds are included in this prohibition.

2.1.4. California Fish and Game Code

Several sections of the California Fish and Game Code are applicable to analysis of biological resource impacts that may be associated with the project. The following paragraphs summarize these sections.

Section 1580

This section declares that the policy of the state is to protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and non-marine aquatic, or large heterogeneous natural gene pools for the future use of mankind through the establishment of ecological reserves.

Sections 1600-1616

An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake without providing notification to the California Department of Fish and Game (CDFG). This notification may result in a Streambed Alteration Agreement between the project applicant and CDFG. Activities in intermittent streams and canals may require Streambed Alteration Agreements.

Section 1900, et seq.

This portion of the California Fish and Game Code is known as the “Native Plant Protection Act”. The purpose of this chapter is to preserve, protect and enhance

endangered or rare native plants of this state. Many species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors. This portion of the code designates California rare, threatened, and endangered plant taxa.

Section 1930-1933

These sections find and declare that because areas containing diverse ecological and geological characteristics are vital to the continual health and well being of the state's natural resources and of its citizens, the Significant Natural Areas Program was established to be administered by the CDFG. The CDFG, in administering this program, is charged with being responsible for obtaining access to the most recent information with respect to natural resources by maintaining, expanding, and keeping current a data management system, designated the California Natural Diversity Database (CNDDB), designed to document information on these resources. That data is required to be made available to interested parties on request. Costs are to be shared by all who use the data management system.

The state's most significant natural areas are to be designated and, after consultation with federal, state, and local agencies, education institutions, civic and public interest organizations, private organizations, landowners, and other private individuals, periodic reports regarding the most significant natural areas are to be prepared. The CDFG is required to maintain and perpetuate these significant natural areas for present and future generations in the most feasible manner. The code also requires that CDFG coordinate services to federal, state, local, and private interests wishing to aid in the maintenance and perpetuation of significant natural areas.

Section 3503

This section prohibits taking, possessing, or needlessly destroying the nest or eggs or any bird. Birds of prey are included in Section 3503.5.

Section 3513

California’s migratory birds are protected under this section by making it unlawful to take or possess any migratory non-game bird (or any part of such bird) as designated in the MBTA.

Section 3511, 4700, 5050, and 5515

These sections prohibit take of animals that are classified as “Fully Protected (FP)” in California. Take of “FP” species is specifically prohibited, even if other sections of the Fish and Game Code provide for “incidental take” of the species.

2.1.5. California Code of Regulations Title 14, Sections 670.2 and 670.5

These sections list the wildlife that is designated as threatened or endangered species in California. Title 14 California Code of Regulations (CCR) Section 15000 et seq. prescribes the regulations to be followed by all local and state agencies in implementing the California Environmental Quality Act (CEQA).

2.1.6. Clean Water Act, Sections 401 and 404

The State of California regulates water quality related to discharge of fill material into waters of the State pursuant to Section 401 of the Clean Water Act (CWA). Section 401 compliance is a federal mandate implemented by the State. The local Regional Water Quality Control Board (RWQCB) has jurisdiction over all those areas defined as jurisdictional under Section 404 of the CWA and regulates water quality for all waters of the State. These waters may include isolated wetlands as defined under the California Porter-Cologne Water Quality Control Act (Porter Cologne; California Water Code, Div. 7, §13000 et seq.). Regulated discharges include those that can affect water quality, even if there is no significant nexus to a traditional navigable water body required for United States Army Corps of Engineers (ACOE) determination of jurisdiction over waters of the US. A Waste Discharge Permit may be required to comply with the Porter-Cologne Water Quality Control Act even if the CWA (including Section 401 water quality certifications or Section 404 permits) would not apply.

The ACOE, under Section 404 of the CWA, regulates discharges of dredged or fill material in "waters of the United States”. In addition to designated and traditional navigable waters, this term includes “waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: 1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or 2) From which fish or shellfish are or could be

taken and sold in interstate or foreign commerce; or 3) Which are used or could be used for industrial purpose by industries in interstate commerce". Tributaries to "waters of the United States" and adjacent wetlands would also be included [33 Code of Federal Regulations (CFR) §328.3].

Some intermittent washes may be included in the defined "waters of the United States," depending on connection or nexus to navigable waters. Both wetlands and non-wetland areas can be included within the regulated area. Within non-wetlands that are classified as waters of the U.S., the ACOE maintains jurisdiction up to the Ordinary High Water Mark (OHWM). If wetlands are present that meet the criteria established by the ACOE, the limit of jurisdiction is the ordinary high water mark or the limit of the adjacent or associated wetland, whichever is greater. If waters are determined to be under the jurisdiction of the ACOE, the RWQCB would be the state permitting authority. At the discretion of the ACOE, impacts to these areas could require a permit, depending on the type and size of the activity within ACOE jurisdiction.

2.1.7. Executive Order 13112

Executive Order (EO) 13112, February 3, 1999, established the National Invasive Species Council tasked with acting as an interdepartmental organization to centralize efforts across agencies and political boundaries toward addressing the impacts and ongoing threats of invasive species. Implementation of this EO required, among other actions, limitation or exclusion of federal funding for projects which may result in promoting the introduction or spread of invasive species (EO 1999). Guidelines established by the Federal Highway Administration (FHWA) stipulate that FHWA funding will not be allocated for projects not in compliance with the EO and FHWA California Division will not authorize National Environmental Policy Act (NEPA) compliance in the absence of analysis of invasive species for such projects.

2.2. Studies Required

Prior to conducting field surveys, a review of pertinent literature, regulatory requirements, special-status species lists and recorded occurrences was conducted to determine if the BSA is located within the range of sensitive resources such as state and/or federally-listed threatened and/or endangered species and other biological resources of concern to wildlife agencies or pertinent regional conservation groups.

The CNDDB contains records for special status species, as well as sensitive natural communities that have been reported to the CDFG for a specific USGS 7.5' topographic quadrangle. The USFWS online database generates a list of federally listed special status species with the potential to occur within a USGS quad. The California Native Plant Society (CNPS) online inventory contains information regarding state and federal listed plants species and those considered by the CNPS to be sensitive.

A list of special status species that could potentially occur in the BSA and a ten mile radius of the BSA was compiled (Table 1) by accessing the CNDDB (Appendix A), the CNPS online inventory, the USFWS online database (accessed October 2011) (Appendix D), and by consulting pertinent literature for the USGS 7.5-minute quadrangle of Porterville in which the BSA is located, as well as the eleven surrounding quads of Gibbon Peak, Fountain Springs, Ducor, Sausalito School, Springville, Frazier Valley, Success Dam, Globe, Lindsay, Cairn's Corner, and Woodville.

The list was augmented as necessary, with animals designated as "Fully Protected" by the CDFG Code Sections 5050 (Fully Protected reptiles and amphibians), 3511 (Fully Protected birds), and 4700 (Fully Protected mammals). Only those sensitive natural communities and special status species with the potential to occur in the BSA and the 10 mile radius are considered in this report. An evaluation of the potential for each species to occur in the BSA was made based upon the findings obtained during data reviews, literature reviews, and site investigations. A map of known occurrences of sensitive natural communities and special-status species in the BSA and a ten mile radius was prepared from data contained in the CNDDB and CNPS databases (Database map is included in Appendix A). Relevant recovery plans and listing packages for threatened and endangered species were reviewed to determine recovery strategies and assess the potential for Critical Habitat to occur on or in the BSA and the 10 mile radius around the BSA.

The National Wetlands Inventory(NWI) and Federal Emergency Management Agency (FEMA) floodzone databases were reviewed. Soils in the BSA and vicinity were researched using maps from the United States Department of Agriculture Natural Resources Conservation Service (NRCS).

A biological survey of the BSA was conducted in May 2008 to characterize conditions present, determine vegetative communities and to prepare an inventory of

plants and animals observed in the BSA. Vegetative communities present on the BSA were classified based upon visual determinations of species composition and prevalence (sensu Holland 1986 and Mayer and Laudenslayer 1988). All plants observed were identified to species, and a list of these is presented in the Appendix C. An additional survey for elderberry shrubs was conducted in June 2008. A final biological field survey was conducted in September 2011. During the biological surveys the BSA was surveyed for special status or otherwise rare plant and animal species and their habitat. The BSA was evaluated for its potential to support special status plant and wildlife species based on the presence of vegetation associations, BSA elevation, known occurrences in the vicinity of the BSA, habitat affinities and known distributions and ranges of the various species. During surveys of the BSA habitat types, soils types, exposures, levels of disturbance, and other factors were noted.

All individual elderberry shrubs within the BSA were located using a Trimble GeoXH GPS unit with sub-meter accuracy and mapped.

The OHWM of the Tule River was visually determined and mapped using a Trimble GeoXH GPS unit.

2.3. Personnel and Survey Dates

An initial biological survey of the BSA was conducted on 5 May 2008 by Biologist Gene Moise. A second biological survey was conducted by Mr. Moise on 13 June 2008. A formal delineation of Waters of the United States (WOUS) was conducted by Mr. Moise on 25 March 2009. A final biological field survey was conducted by biologist Danielle Temple and planner David Duda on 27 September 2011.

2.4. Agency Coordination and Professional Contacts

- The City of Porterville is preparing an Initial Study/Mitigated Negative Declaration (IS/MND) for the project. A Notice of Availability and the IS/MND will be circulated to the CDFG, USFWS and the ACOE. Additional agencies including Tulare County, the San Joaquin Valley Air Pollution Control District, and other local agencies will be included in the noticing.
- A Notification of Lake or Streambed Alteration and requisite permit application, processing fee and final environmental documents will be submitted to the CDFG. In addition, CDFG will be consulted to discuss potential impacts to

sensitive species. Avoidance and mitigation measures will be outlined in a Revegetation and Restoration Plan will be determined by the CDFG in consultation with the City of Tulare

- In accordance with the Clean Water Act (CWA), a 401 permit application will be submitted to the RWQCB.
- In accordance with the CWA, a Section 404 permit application will be filed with the ACOE.
- Because the project is located within the jurisdiction of the Central Valley Flood Protection Board, an Encroachment Permit will be required. A permit application will be submitted to the Board.

2.5. Limitations That May Influence Results

Botanical surveys in this region are typically conducted three times during the growing season to ensure that plants are detected and identified while flowering. Surveys are generally conducted in spring, in mid-summer and in late-winter. A spring survey of the BSA for special status plant species was conducted on 5 May 2008. Elderberry shrubs were originally surveyed and mapped on 18 June 2008. Surveys for late-winter blooming plant species were not conducted because there were no late-winter blooming plant species identified as having the potential to occur in the BSA.

Surveys for raptor nests are most easily conducted during periods when trees are leafless and nests can readily be observed. The May 2008 raptor survey of the BSA was conducted with trees fully leafed, which made nest observations less than optimal.

On 25 March 2009 a formal delineation of Waters of the United States (WOUS) was conducted for areas located within and adjacent to the project site boundaries using currently accepted methodologies as set forth in the Corps 1987 Wetlands Delineation Manual and the 2006 Corps Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.

An additional field survey was conducted on 27 September 2011. The field survey mapped the elderberry shrubs within the BSA, surveyed for raptors and special status plants and wildlife species. The September 2011 survey of the BSA was conducted with trees fully leafed, which made nest observations less than optimal. Additionally, the survey was conducted outside of the nesting period for swallows.

Chapter 3. Results: Environmental Setting

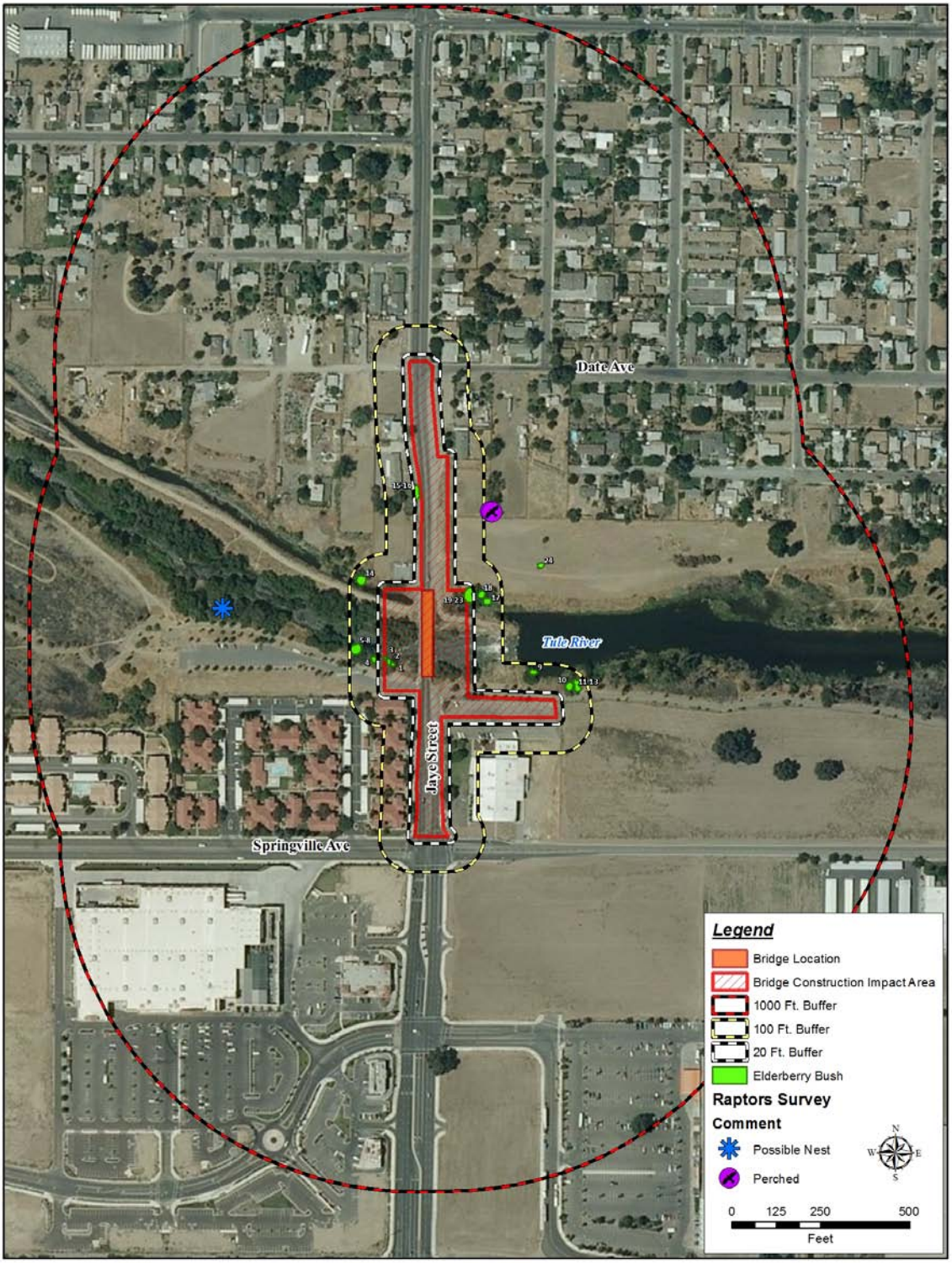
3.1. Description of the Existing Biological and Physical Conditions

The project site is located in Tulare County, which is within the Central California Valley eco-region (Omernik 1987). This ecoregion is characterized by flat, intensively farmed plains with long, hot dry summers and cool, wet winters. The Central California Valley eco-region includes the Sacramento Valley to the north and the San Joaquin Valley to the south and it ranges between the Sierra Nevada foothills to the east to the Coastal Range foothills to the west. Nearly half of the region is actively farmed, and about three quarters of that farmed land is irrigated.

Average temperatures range from December lows of 38.2 degrees Fahrenheit to July highs of 98.1 degrees Fahrenheit. Average annual precipitation is approximately 11.49 inches; precipitation falls primarily as rain with most precipitation occurring between the months of November and April (Western Regional Climate Center 2008).

3.1.1. Biological Study Area

The Tule River flows from east to west and bisects the City of Porterville. The river in the vicinity of the project site is an incised channel flanked by 35-45 degree slopes, rip-rapped and partially vegetated. The BSA (see Figure 3) is urban outside of the riparian zone and adjacent parkway and disturbed areas along the river. In the vicinity of the Jaye Street Bridge, the riparian vegetation found along the river is Great Valley Mixed Riparian Forest (GVMRF). This is a tall, dense, winter-deciduous broadleafed riparian forest which is fairly well-closed and contains emergent cottonwoods (*Populus fremontii*) in the overstory and red willows (*Salix laevigata*) and blue elderberries in the understory. This community is usually associated with low-gradient, depositional streams of the Great Valley, usually below 500 feet MSL, with fine-textured alluvial soils in areas with occasional overbank flooding.



BIOLOGICAL STUDY AREA
JAYE STREET BRIDGE

Figure 3

Herbaceous vegetation near the OHWM of the river included stinging nettle (*Urtica dioica*), monkeyflower (*Mimulus guttatus*), while upslope the herbaceous layer was dominated by ripgut (*Bromus diandrus*) and red brome (*Bromus madritensis*).

Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*) an invasive, noxious weed, were found to the east of the bridge along the south bank of the river. Portions of the rather steep channel banks near the bridge were dressed in riprap, and the in-stream habitat was generally degraded in this portion of the river.

Elderberry shrubs and a possible raptor nest were located within the BSA.

The Tule River Parkway parallels the river on the terrace above the south bank. This city-maintained trail has planted willows and oaks and non-native ornamental trees and shrubs along a paved path which extends for several hundred meters to the east of the Jaye Street Bridge, and the paved portion terminates with a large parking area to the immediate southwest of the bridge. Ruderal vegetation characteristic of disturbed lands dominates the north bank of the river to the east of the bridge, while to the west is GVMRF. Away from the river, the narrow riparian corridor is flanked by the urban landscape of the City of Porterville.

Land use in the area surrounding the project site is primarily recreational (Tule River Parkway), residential and commercial.

3.1.2. Physical Conditions

The BSA is located in the City of Porterville within a primarily urbanized, disturbed area. The Tule River traverses the BSA. Jaye Street is a north-south arterial in the City of Porterville and bisects the BSA. The Jaye Street Bridge is located in the center of the BSA. According to Flood Insurance Rate Map (Community Panel 06107C1642E), the project area is in Zone AE, the 100-year flood zone. The NRCS soil survey for the project area indicates that the soil that underlies the project area is composed of San Emigdio loam and Tujunga sand. The soils are comprised of loam, sandy loam sand, and fine sand.

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. VEGETATION COMMUNITIES

The BSA is primarily urban outside of the riparian zone and adjacent parkway and disturbed areas along the river. In the vicinity of the Jaye Street Bridge, the riparian vegetation found along the river is GVMRF. The overstory and midstory consists of willow (*Salix sp*.), cottonwood (*Populus fremontii*), and elderberry (*Sambucus Mexicana*). Herbaceous vegetation near the OHM of the river included stinging nettle (*Urtica dioica*), monkeyflower (*Mimulus guttatus*), while upslope the herbaceous layer was dominated by ripgut (*Bromus diandrus*) and red brome (*Bromus madritensis*).

Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*) an invasive, noxious weed, were found to the east of the bridge along the south bank of the river. Portions of the rather steep channel banks near the bridge were dressed in riprap, and the in-stream habitat was generally degraded in this portion of the river.

Great Valley Mixed Riparian Forest

GVMRF includes several riparian species, and was found in the BSA in areas immediately adjacent to the Tule River. According to Holland, this "tall, dense, winter-deciduous, broadleafed riparian forest" includes, "California Box Elder (*Acer negudndo californica*), Northern California walnut (*Juglans hindsii*), California sycamore (*Platanus racemosa*), Cottonwood (*Populus fremontii*), Goodings willow (*Salix gooddingii variabilis*), Red willow (*S. laevigata*), and Pacific willow (*S. lasiandra*) . Shade tolerant shrubs such as Buttonbrush (*Cephalanthus occidentalis*) and Oregon ash (*Fraxinus latifolia*)" make up the understory.

3.1.3.2. COMMON ANIMAL SPECIES

Common animal species expected to occur in the BSA include the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), the Bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), American Badger (*Taxidea taxus),* and San Joaquin kit fox (*Vulpes macrotis mutica*).

Invertebrates

The Valley elderberry longhorn beetle (VELB, *Desmocerus californicus dimorphus*) is the most common invertebrate species expected to occur in the BSA. Elderberry plants (*Sambucus Mexicana*) are located within the BSA and are the exclusive habitat for the valley elderberry longhorn beetle, a federally threatened species. Potential exit holes were found on seven of the elderberry shrubs surveyed. No VELB were observed and it is possible that these exit holes were created by other wood boring insects.

Birds

The GVRMF habitat within the BSA provides suitable habitat for a number of bird species. Special status bird species that could occur in the area include the Bald eagle (*Haliaeetus leucocephalus*) and Swainson's hawk (*Buteo swainsoni*), although these two species were not observed during field surveys. Raptors and other migratory birds could also occur within the BSA. Two Cooper's hawks (*Accipiter cooperii*) were observed during the September 2011 field survey. The September 2011 survey identified swallow (*Petrochelidon pyrrhonota*) nests on the underside of the bridge, however because of the survey period, no swallows were observed, although they would presumably return to the BSA during the next nesting season (March through September).

Mammals

Common mammal species that may occur in the BSA include the American Badger (*Taxidea taxus),* and the San Joaquin kit fox (*Vulpes macrotis mutica*). Field surveys were conducted throughout the BSA for signs of wildlife that might utilize the riverbanks, trees, ground, or bridge site for foraging, nesting, roosting, or other activities. No mammals were observed during any of the surveys.

Movement Corridor

The most prominent movement corridor is the riparian corridor of the Tule River, which traverses the BSA. The corridor may be used as a stopover site for migratory birds. The project will not restrict, eliminate, or significantly alter this movement corridor, either during construction or after the project has been constructed. The design of the project will not impede animal movements along this route. A number of bird species are found within the BSA only during certain seasons of the year, and

it is likely that the river corridor provides access to feeding and breeding habitat during migrations.

The existing road may also provide a movement route across the river. The project area is located in an urban setting in the City of Porterville. The north and south approaches to the bridge are dominated by residential areas. Fencing associated with these residential homes and other signs of human habitation could hinder movement. It is possible that small mammals could use the roadway and bridge for movement. No small mammals were observed during any of the field surveys.

INVASIVE SPECIES

Two invasive plant species were found in the BSA. Castor bean (*Ricinus communis*) and giant reed (*Arundo donax*) were found to the east of the bridge along the south bank of the river.

3.2. Regional Species and Habitats of Concern

3.2.1. Sensitive Communities

Three sensitive natural communities reported from within ten miles of the BSA include: GVMRF, Sycamore Alluvial Woodland and Northern Claypan Vernal Pool (CNDDB 2011) (Appendices A and C). The GVMRF occurs in the BSA, while Sycamore Alluvial Woodland and Northern Claypan Vernal Pool do not occur in the BSA.

Areas which are under the jurisdiction of the ACOE, RWQCB and the CDFG are treated as sensitive habitats. The portion of the OHWM of the Tule River that falls within the BSA would be considered sensitive habitat, the total amount is undetermined. This area is under the jurisdiction of the ACOE and the RWQCB as non-wetlands waters of the United States. The bed, bank and channel of the Tule River are under the jurisdiction of the CDFG. It is undetermined how much GVMRF is present on the banks of the river within the BSA and would fall under the jurisdiction of the CDFG.

3.2.2. Special Status Plants

Eighteen special status plant species are known to occur in the BSA or within a 10 mile radius of the BSA (Table 1). This table was compiled from documents reviewed

during the literature search, including those identified by the CNPS (2011) and the CNDDB (CDFG 2011). The BSA does not include suitable habitat for any special status plant species and none were observed during the surveys. They are considered absent from the BSA.

3.2.3. Special Status Wildlife

Twenty-eight special-status wildlife species are known to occur in the BSA or within a ten mile radius of the BSA (Table 1). The table was compiled from documents reviewed during the literature search, including those identified by the CNDDB (CDFG 2011) and USFWS. Of these 28 species, it was determined that seven have the potential to occur in or immediately adjacent to the BSA. They are the Valley elderberry longhorn beetle, Bald eagle, Swainson's hawk, pallid bat, western mastiff bat, American badger, and San Joaquin kit fox.

Table 1: Sensitive Natural Communities and Special-Status Species Potentially Occurring in the BSA

* The BSA provides potentially suitable habitat to some wildlife species that were determined to be absent from the BSA. These species are not discussed in any further detail in the document because no avoidance and minimization measures are required.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
Sensitive Natural Communities						
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	Protected under CEQA	This is a tall, dense, winter-deciduous riparian forest on fine-grained alluvial soils. This is a tall, dense, winter-deciduous broadleafed riparian forest which is fairly well-closed and contains emergent cottonwoods (*Populus fremontii*) in the overstory and red willows (*Salix laevigata*) and blue elderberry shrubs in the understory. This community is usually associated with low-gradient, depositional streams of the Great Valley, usually below 500 feet AMSL, with fine-textured alluvial soils in areas with occasional overbank flooding.	**Present**	**Present**	This natural community is present within the BSA adjacent to the bridge.
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	Protected under CEQA	Northern Claypan Vernal Pools is a low, herbaceous community dominated by annual herbs and grasses on neutral to alkaline hardpan soils. This wetland habitat, seasonally flooded or saturated with saline to fresh water, forms on alkaline and/or saline silica-cemented hardpan soils which impede water infiltration. Germination and growth begin with winter rains, often continuing even when	**Absent**	**Absent**	The soils on the project site consist of Tujunga San Emigdio series soils, which are excessively drained and do not impede water infiltration. There are no Northern Claypan Vernal Pools or habitat that would support Northern Claypan Vernal Pools on the project site.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			inundated. Rising spring temperatures evaporate the pools, leaving concentric bands of vegetation.			
Sycamore Alluvial Woodland	Sycamore Alluvial Woodland	Protected under CEQA	Sycamore alluvial woodlands are open to moderately closed, winter-deciduous broadleafed riparian woodlands. They inhabit braided, depositional channels of intermittent streams, usually with cobbly or bouldery substrate. These streams rely on rainfall, rather than snowmelt, for their water supply, so they usually have flowing water only for brief periods after winter storms.	**Absent**	**Absent**	There are no Sycamore Alluvial Woodlands on the project site. The Tule River flow is controlled by releases from the Success Dam. The streamflow on the Tule River is greater than what would be supplied by rainfall.
Special Status Plant Species						
Mimulus pictus	Calico monkeyflower	1B.2	Calico monkey-flowers occur in bare, sunny areas around shrubs and rock outcrops on granitic soils. The flowering period is March-May, and the elevation range is 320-4,160 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists on site
Stanfordia californica =Caulanthus californicus	California jewel-flower	FE, CE, 1B.1	This plant occurs on sandy soils with chenopod scrub, pinyon juniper woodland, and grasslands. The flowering period is Feb-May. Its elevation range is 230-3300 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists on site.
Atriplex erecticaulis	Earlimart orache	1B.2	This plant species is found in valley and foothill grassland. The flowering period is August-September. Its elevation range is 130-330 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists on site.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
Atriplex cordulata	Heartscale	List 1.B.2	This species inhabits meadows and seeps and valley and foothill grassland on sandy, saline or alkaline soils	**Absent**	**Absent**	No suitable habitat exists on site.
Chamaesyce hooveri	Hoover's spurge	FT	This species is restricted to vernal pools. However, the plant appears to have adapted to a wide variety of soils, which range in texture from clay to sandy loam. Specific soil series from which it has been reported include Anita, Laniger, Lewis, Madera, Meikle, Riz, Tuscan, Whitney, and Willows. Natural pools in which the plant occurs are primarily classified as Northern Hardpan and Northern Claypan vernal pools. in the San Joaquin Valley, Solano-Colusa, and Southern Sierra Foothills vernal pool regions are on neutral to saline-alkaline soils over lime-silica cemented hardpan or claypan.	**Absent**	**Absent**	No suitable habitat exists on site.
Brodiaea insignis	Kaweah brodiaea	SE, 1B.2	Cismontane Foothill and Woodland grassland. Micro-habitat includes granite substrates in deep clay soils on S-SW facing slopes, usually in grassland surrounded by woodland. Flowering extends from April to June. The elevation range is from 500 to 4,600 feet AMSL.	**Absent**	**Absent**	This species was not found within the BSA during surveys conducted during flowering season. There is no suitable habitat for this species. Soils on the project site consist of Tujunga and San Emigdio series, which are only five percent clay.
Sidalcea keckii	Keck's checkerbloom	FE, 1B.1	Keck's checkerbloom occurs on 20 to 40 percent slopes of red or	**Absent**	**Absent**	No suitable habitat exists within the BSA. No species

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			white-colored clay in sparsely-vegetated annual grasslands. The clays are thought to be derived from serpentine (magnesian or ultramafic) soils. The flowering period is Apr-May. The elevation range is 400-1400 feet AMSL.			were observed during the field surveys.
Atriplex minuscula	Lesser saltscale	1B.1	This annual plant occurs in Chenopod scrubland, grassland, and alkali sink habitats, but it also is known to occur in wet areas. The flowering period is May-October, and the elevation range is 50-660 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA. No species were observed during the flowering period.
Leptosiphon serrulatus	Madera leptosiphon	List 1B.2	Cismontane woodland and lower montane coniferous forest. Elevational range is 985 to 4,265 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA. No species were observed during the field surveys.
Abronia alpine	Ramshaw Meadows sand verbena	FC, 1B.1	The plant is found on arkosic gravel meadow margins between lodgepole pine forest and sagebrush scrub communities surrounding Ramshaw and Templeton Meadows. The elevation range is between 8,000 and 9,000 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA. This species occurs at elevations much greater than the project site.
Delphinium recurvatum	Recurved larkspur	1B.2	This plant species is commonly found in chenopod scrub, valley and foothill grassland and cismontane woodland. The flowering period is March-June. The elevation range is 10-2,500 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA. This species was not observed during the field surveys conducted during the flowering period.
Pseudobahia peirsonii	San Joaquin adobe sunburst	FT, CE, 1B.1	San Joaquin adobe sunburst is associated with abode clay soils	**Absent**	**Absent**	No suitable habitat exists within the BSA. Soils within

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			within foothill woodlands and grasslands. The flowering period is March-April. The elevation range is 300-2,625 feet AMSL.			the project site are Tujunga and San Emigdio series soils, which are only five percent clay.
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT, SE	These species grow in the basins and margins of vernal pools of the Central Valley of California.	**Absent**	**Absent**	No suitable habitat exists within the BSA. The species was not observed during the field surveys.
Eryngium spinosepalum	Spiny-sepaled button-celery	List 1B.2	Vernal pools and valley and foothill grasslands. Elevational range is 260 to 840 feet above MSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA. The species was not observed during the field surveys.
Clarkia springvillensis	Springville clarkia	FT, SE, 1B.2	This plant species inhabits chaparral, cismontane woodland, and valley and foothill grasslands. It occurs in decomposed granitic loam on cutbanks and openings in blue oak woodland. The flowering period is from May to June. The elevation range is from 800 to 4,000 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists on site. A field survey was conducted within the BSA during flowering period. No species were present. One CNDDB record is 3.5 miles north of the BSA. Eleven additional occurrences occur within 10 miles of the BSA.
Atriplex subtilis	Subtle orache	1B.2	This annual plant occurs in chenopod scrubland, grassland, and alkali sink habitats, but it also is known to occur in wet areas. The flowering period is June-August. The elevation range is 130-330 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA.
Fritillaria striata	Striped adobe-lily	ST, 1B.1	Striped adobe-lily occurs in clay soils in cismontane woodland and valley and foothill grasslands. The flowering period is Feb-Apr. The elevation range is 450-4750 feet AMSL.	**Absent**	**Absent**	No suitable habitat exists within the BSA Soils on the project site are not clay. CNDDB records indicate seven occurrences within 10 miles of the BSA.
Atriplex persistens	Vernal pool smallscale	1B.2	This plant is restricted to alkaline vernal pools on the floor of the	**Absent**	**Absent**	No suitable habitat exists within the BSA.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			San Joaquin Valley and is endemic to California. The flowering period is May-October. The elevation range is 30-375 feet AMSL.			
Special status Animal Species						
Invertebrates						
Lytta molesta	Molestan blister beetle	SSC	This insect is found in Central California, often on flowers including *Lupinus, Trifolium wormskioldii* in dried vernal pools, and on *Ediodum*. This species is most often, if not always, associated with dried vernal pools,	**Absent**	**Absent**	Habitat capable of supporting this species is not present within the BSA. CNDDB records indicate it is found approximately 8 miles north of the BSA.
Lytta morrisoni	Morrison's blister beetle	None	Inhabitant of the Central Valley. The species has been frequently encountered on flowers such as the *Gilia tricolor* and *Linanthus liniflorus.*	**Absent**	**Absent**	Habitat capable of supporting this species is not present within the BSA. The CNDDB records indicate it is found 1.5 miles southeast of the BSA.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Blue elderberry shrubs (*Sambucus* sp.).	**Present**	**Inferred Present**	Elderberry shrubs observed on site, and within the BSA during surveys. Beetle exit holes were visible on potential host plants. Five CNDDB records of VELB occur within 10 miles of the BSA. The Valley Elderberry Longhorn Beatle Conservation Area is located 2.5 miles away, along the Tule River within the Yaudanchi Ecological Reserve.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
Branchinecta lynchi	Vernal pool fairy shrimp	FT	Vernal pools and seasonal wetlands.	**Absent**	**Absent**	No suitable habitat exists within the BSA.
Lepidurus packardi	Vernal pool tadpole shrimp	FE	Vernal pools. In the San Joaquin Vernal Pool Region, vernal pool tadpole shrimp are known from the Grasslands Ecological Area and private land in Merced County and from single locations in Tulare and Kings Counties. In the Southern Sierra Foothills region, the species occurs at the Stone Corral Ecological Preserve in Tulare County, on ranchlands in eastern Merced County, at the Big Table Mountain Preserve in Fresno County, and at a few locations in Stanislaus County.	**Absent**	**Absent**	No suitable habitat exists within the BSA.
Fishes						
Hypomesus transpacificus	Delta smelt	FT	Delta smelt are endemic to the Sacramento Delta, although they are found in spring in river channels and estuarine waters of varying salinity. CNDDB has records in the Sacramento Delta and San Joaquin River.	**Absent**	**Absent**	No habitat for Delta Smelt occurs within Tulare County or within the Kaweah River system. Species not observed during surveys.
Oncorhynchus mykiss whitei	Little Kern golden trout	FT	Little Kern golden trout are found throughout the Kern River drainage system. They are found within Tulare County, but not within five miles of the BSA.	**Absent**	**Absent**	No Kern River habitat is present within the BSA. CNDDB has no sightings of Little Kern golden trout within the Kaweah River system. Species not observed during surveys.
Amphibians						

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
Rana aurora draytonii	California red-legged frog	FT	This frog was historically found as far south as Tulare County and the Sierra Nevada foothills. They are found mainly near ponds in lowlands and foothills. Breeding habitat includes lakes, ponds, reservoirs, slow streams, marshes, bogs and swamps.	**Absent**	**Absent**	Habitat is marginal and there are no recorded occurrences in the Sierra Nevada Region within 140 miles. None were observed during surveys.
Ambystoma californiense	California tiger salamander	FT	This species occurs at lower elevations of Tulare County, in annual grasslands and open woodlands and areas along water bodies and in areas with suitable small mammal burrows for adults.	**Absent**	**Absent**	No open woodlands and grasslands occur within the BSA. Habitat is absent and CNDDB includes no records of this species within 10 miles of the BSA.
Rana boylii	foothill yellow-legged frog	SSC	Foothill yellow-legged frogs live in a variety of aquatic habitats with slow-flowing water. They need at least some cobble-sized substrate for egg-laying, and 15 weeks to attain metamorphosis. It may take up to 4 years to complete aquatic development. Breeding occurs from March to early June.	**Absent**	**Absent**	Habitat on site is not suitable for this species, and there are no recorded occurrences within 10 miles of the site.
Rana muscosa	Mountain yellow-legged frog	FC	Inhabits lakes, ponds, meadow streams, isolated pools, sunny riverbanks in the southern Sierra Nevada Mountians. Always encountered within a few feet of water. May take up to 4 years to complete aquatic development.	**Absent**	**Absent**	The river in the BSA does not provide slow moving water for long periods of time that is required for breeding. No populations were identified within 10 miles of the BSA. This species was not observed during surveys.
Spea hammondii	Western spadefoot	SSC	Seasonal pools and ponds in grassland habitats.	**Absent**	**Absent**	No suitable habitat exists within the BSA.

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
Reptiles						
Gambelia (= Crotaphytus) sila	Blunt-nosed leopard lizard	FE	Blunt-nosed leopard lizard occurs in semi-arid grasslands, alkali flats and washes.	**Absent**	**Absent**	The BSA includes no semi-arid grasslands or alkali flats or washes. Species was not observed during surveys.
Thamnophis giga	Giant garter snake	FT, ST	Giant garter snakes require permanent or semi-permanent marshes and sloughs.	**Absent**	**Absent**	No suitable habitat exists on site
Avian						
Haliaeetus leucocephalus	Bald eagle	SE	Riverine and lake habitats.	**Present**	**Inferred Present**	Habitat on site is marginal. Not observed during field surveys.
Gymnogyps californianus	California condor and its Critical Habitat	FE, SE	California condors prefer mountains, gorges, and hillsides, which create updrafts, thus providing favorable soaring conditions, but also require vast expanses of open savanna, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Need rocky clefts for nesting. May travel up to 150 miles/day to forage.	**Absent**	**Absent**	Marginal foraging habitat is present in the BSA; nesting and roosting habitat are not present in the BSA. Critical habitat is located within approximately 10 miles northeast of the BSA. No condors were observed during surveys, and no suitable habitat exists to sustain more than an occasional visitor.
Buteo swainsoni	Swainson's hawk	ST	Grasslands and riparian areas.	**Present**	**Inferred Present**	Habitat is suitable, but this species was not observed during field surveys. There are no known occurrences within five miles of the site.
Empidonax traillii extimus	Southwestern willow flycatcher	FE	This species occurs in dense, deciduous thickets, especially willows along watercourses. There may also be an overstory of cottonwood, tamarisk or other	**Absent**	**Absent**	There are no dense willow thickets within the BSA. No suitable habitat is present. No recorded sightings of this species have occurred within

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			large trees.			10 miles of the BSA. Species was not observed during surveys.
Mammals						
Taxidea taxus	American badger	SSC	Occurs in a wide variety of open forest, shrub, and grassland habitats that have friable soils for digging	**Present**	**Inferred Present**	Marginal habitat occurs in area, but no dens or other sign found during field surveys.
Gulo gulo	California wolverine	ST, FP	California wolverines occur in Sierra Nevada open habitat, above or at timberline. It needs water sources. It uses caves, burrow for cover and hunts more in open areas. Can travel long distances.	**Absent**	**Absent**	Suitable habitat for this species does not occur within the BSA. Species was not observed during surveys. A CNDDB record within 10 miles of the BSA is from 1907, and at 4,000 feet, considerably above the elevation of the BSA. Five CNDDB records exist from 1902 – 1970, but none more recent.
Dipodomys nitratoides exillis	Fresno kangaroo rat	FE, SE	This species requires alkali sinks and open grassland habitat, especially in western Fresno county. Microhabitat includes bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs & grasses.	**Absent**	**Absent**	The BSA does not contain habitat suitable of supporting this species. This species is considered extirpated from Fresno County, with the last known capture occurring in 1992 at the Alkali Sink Ecological Reserve.
Dipodomys ingens	giant kangaroo rat	FE, SE	The giant kangaroo rat is endemic to the San Joaquin and Tulare Basins in the southern end of the Great Central Valley in California. This species is found in annual grasslands on the western side of the San Joaquin Valley, and finds marginal habitat	**Absent**	**Absent**	No suitable habitat for this species occurs within the BSA and there are no records of this species occurring within 10 miles of the project site

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			in alkali scrub. Usually in sloped terrain with loam soils for burrowing.			
Martes pennanti pacifica	Pacific fisher	FC, SSC	Pacific fishers inhabit intermediate to large tree stages of coniferous forests and deciduous-riparian areas with high percentages of canopy closure above 3,000 ft AMSL. They use cavities, snags, logs, and rocky areas for cover and den sites. Pacific fishers need large areas of mature, dense forest.	**Absent**	**Absent**	Habitat does not occur within the BSA. Species was not observed during surveys. CNDDB records within 10 miles of the BSA are from the 1960's and 1970's.
Antrozous pallidus	pallid bat	SSC	Pallid bats occur in grasslands, shrublands, woodlands, and forests at elevations from sea level to high altitude mixed conifer forests. This species is most common in open, dry habitats with rocky areas for roosting. It is locally common in low elevations in California. This species eats scorpions.	**Absent**	**Absent**	Although CNDDB records for this species exist within 10 miles of the BSA, this species is unlikely to be present within the BSA. No bats or potential roosting habitat for bats was observed under the bridge. The bridge has a flat bottom and therefore is structurally lacking in areas that would offer optimal roosting opportunities for bats. Therefore, day or night roosting bats are not likely to use this bridge. Marginal foraging habitat is present at the bridge site.
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST	San Joaquin kit foxes occur in open, dry grassland and shrub and open forest habitats on the floor of the San Joaquin Valley and surrounding foothills.	**Present**	**Inferred Present**	This species is sometimes found in urban areas in the southern San Joaquin Valley. On site habitat is marginal. No dens or other signs of this species was found during

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
						field surveys.
Ovis Canadensis californiana	Sierra Nevada (=California) bighorn sheep	FE, SE	Sierra Nevada bighorn sheep use habitats ranging from the highest elevations along the crest of the Sierra Nevada 13,120 fee AMSL to winter ranges at the eastern base of the range as low as 4,760 feet AMSL. These habitats range from alpine to Great Basin sagebrush scrub. Primary elements of preferred habitats are visual openness and close proximity to steep rocky terrain used to escape from predators.	**Absent**	**Absent**	No suitable habitat is present within the BSA. This species occurs at elevations considerably greater than the project site.
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE, SE	Tipton kangaroo rats are found in saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. They need soft friable soils which escape seasonal flooding to dig their burrows in elevated soil mounds at the base of shrubs.	**Absent**	**Absent**	Suitable habitat to support this species does not occur within the BSA.
Eumops perotis californicus	western mastiff bat	SSC	The western mastiff bat roosts in crevices in cliff faces, high buildings, trees and tunnels. It roosts in large colonies, which take significant space. In California the western mastiff bat is most commonly encountered in broad open areas, but occurs in many semi-arid to arid habitats. This includes dry desert washes, flood plains, conifer and deciduous woodlands, coastal scrub, annual and perennial	**Absent**	**Absent**	Although CNDDB records for this species exist within 10 miles of the BSA, this species is unlikely to be present within the BSA. No bats or potential roosting habitat for bats was observed under the bridge. The bridge has a flat bottom and therefore is structurally lacking in areas that would offer optimal roosting opportunities for bats. Therefore, day or night

Scientific Name	Common Name	Status	Habitat Requirements Potential for Occurrence on Site	Habitat Present Or Absent	Species Present Or Absent	Rationale for Habitat/Species Absence or Presence
			grasslands, montane meadows, palm oases, chaparral, desert scrub, urban, and agricultural areas. They forage over slow moving water.			roosting bats are not likely to use this bridge. Marginal foraging habitat is present at the bridge site.

Sources:

California Department of Fish and Game. 2011. California Natural Diversity Data Base, California Department of Fish and Game, Sacramento, CA.
California Native Plant Society (CNPS). 2011. Inventory of Rare and Endangered Plants, Rare Plant Scientific Advisory Committee. California Native Plant Society, Sacramento, CA.
United States Fish and Wildlife Service (USFWS). 2011. Critical Habitat Portal, Critical Habitat Map, United States Fish and Wildlife Service, Sacramento, CA.
United States Fish and Wildlife Service (USFWS). 2011. Federal Endangered and Threatened Species List, Sacramento Fish and Wildlife Office, Sacramento, CA.

Abbreviations:

AMSL Above Mean Sea Level
FC Federal Candidate Species
FE Federal Endangered Species
FT Federal Threatened Species
SE California Endangered Species
SSC State Species of Special Concern
ST State Threatened Species
1B CNPS List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere.
1B.1 CNPS List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Endangered in California
1B.2 CNPS List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Endangered in California.
1B.3 CNPS List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Not Very Endangered in California.
2.1 CNPS List 2 Species-Plants Categorized as Rare, Threatened, or Endangered in California, but More Common Elsewhere; Seriously Endangered in California.
2.2 CNPS List 2 Species-Plants Categorized as Rare, Threatened, or Endangered in California, but More Common Elsewhere; Fairly Endangered in California.
2.3 CNPS List 2 Species-Plants Categorized as Rare, Threatened, or Endangered in California, but More Common Elsewhere; Not very Endangered in California.
3.3 CNPS Review List: Plants about which more information is needed-Not Very Endangered in California.
4.2 CNPS Watch List: Plants of Limited Distribution; Fairly Endangered in California.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Natural Communities of Special Concern

One natural community is located within and or immediately adjacent to the BSA. GVMRF is located adjacent to the Jaye Street Bridge along the banks of the Tule River.

4.1.1. Discussion of Great Valley Mixed Riparian Forest

In the vicinity of the Jaye Street Bridge, the riparian vegetation found along the Tule River is GVMRF. This is a tall, dense, winter-deciduous broadleafed riparian forest which is fairly well-closed.

4.1.1.1. SURVEY RESULTS

Riparian vegetation making up the GVMRF occurs within the BSA. The overstory and midstory consists of willow, cottonwood, and elderberry. The understory is dominated by wild grape and blackberry. Herbaceous vegetation near the OHWM included stinging nettle and monkeyflower, while upslope the herbaceous layer was dominated by ripgut and red brome.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

GVMRF is located along the river and east and west of the Jaye Street Bridge. Bridge widening and construction and operation of the crossing will impact this natural community. Implementation of the following avoidance and minimization measures will reduce or avoid impacts to GVMRF:

- All GVMRF that is not within the permanent or temporary impact area will be fenced prior to construction and indicated on the plans as ESA.
- ESA fence installation will be overseen by a Biological monitor.
- ESA fencing will be monitored weekly by the Biological monitor to ensure its proper maintenance.

- Pre-construction training of all on-site workers. All on-site contractors and construction workers, including supervisors and inspectors shall attend a worker training and awareness program. At a minimum, the training program shall include discussions regarding the importance and status of the GVMRF and the ESA fencing. The construction workers shall be made aware of their roles and responsibilities in implementing the project protection measures and other requirements.

  Construction activities shall be monitored on a weekly basis by a qualified biological monitor to ensure that all construction fencing and exclusionary fencing is appropriately maintained and that all other measures are fully and faithfully implemented. The biological monitor and the construction team shall work cooperatively to ensure that all measures are effective. The biological monitor shall be on-call to assist with any issues which may arise (such as the "take" of a sensitive species). The biological monitor shall discuss any infractions of the measures with the construction contractor, remedial actions shall be implemented when needed, and solutions shall be devised to prohibit subsequent infractions.

  A monthly progress report shall be prepared by the biological monitor, which shall be submitted to the CDFG. That report shall include dates of construction, types of construction activities occurring, descriptions of the measures that were implemented, infractions that occurred, and descriptions of any remedial actions that were taken. A final report shall be submitted once all construction has been completed and site restoration has been completed.

4.1.1.3. PROJECT IMPACTS

Construction within the BSA will remove an undetermined amount of GVMRF, some of which will be permanently lost as a result of the widening of the bridge. Permanent impacts resulting from project construction would be associated with possible tree removal for bridge widening. Temporary impacts may include trimming of the trees during bridge and road improvements. Impacts to other trees, and vegetation can be avoided with the use of ESA fencing and the avoidance and minimization measures discussed above.

4.1.1.4. COMPENSATORY MITIGATION

Permanent and temporary impacts to GVMRF will be mitigated by implementing a GVMRF Revegetation and Restoration Plan. The Revegetation and Restoration Plan

may include planting or seeding the site with a variety of grass, forb, and tree species, long-term monitoring and reporting, and establishing success criteria. The Plan will be developed in consultation with the CDFG.

Compensatory Mitigation for impacts to GVMRF may also be warranted and, if required, would likely consist of "in-kind" compensation provided by either the purchase of conservation credits from a CDFG approved conservation bank or by the establishment of a conservation easement on an approved conservation site. Mitigation ratios would be determined during consultation with the CDFG.

4.1.1.5. CUMULATIVE IMPACTS

Other projects which impact GVMRF would be expected to provide compensation and incorporate avoidance and mitigation measures. As such it can reasonably be concluded that no cumulative impacts to GVMRF will occur as a result of construction of the proposed project.

4.2. Special Status Plant Species

Eighteen special status plant species are known to occur in the BSA or within a 10 mile radius of the BSA (Table 1). The BSA does not include suitable habitat for any special status plant species and none were observed during the surveys. They are considered absent from the BSA. No avoidance, minimization or mitigation measures are required for the protection of special status plant species.

4.3. Special Status Animal Species Occurrences

Twenty-eight special-status wildlife species are known to occur in the BSA or within a ten mile radius of the BSA (Table 1). Of these 28 species, it was determined that seven have the potential to occur in or immediately adjacent to the BSA and the BSA was specifically evaluated for these seven species. They are the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Bald eagle (Haliaeetus leucocephalus), Swainson's hawk (*Buteo swainsoni*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), American Badger (*Taxidea taxus),*and San Joaquin kit fox (*Vulpes macrotis mutica)*. No special status wildlife species or their sign were found in the BSA during the surveys, but those surveys did not include focused surveys of the intensity required to determine absence. As a result of field surveys it was determined that the presence of these seven special status

wildlife species within the BSA cannot be ruled out. The following is a brief summary of habitat requirements, legal status, distribution, and an evaluation of the potential for occurrence of the six species that have a potential for occurrence in the BSA. Data gathered during pre-survey investigations and site-specific information gathered during field surveys were used in these evaluations.

4.3.1. Valley elderberry longhorn beetle

The Valley elderberry longhorn beetle (VELB) is listed as a Federally threatened species. This species is addressed in the Valley Elderberry Longhorn Beetle Recovery Plan (USFWS 1984).

Longhorn beetles (family Cerambycidae) are characterized by somewhat elongate, cylindrical bodies with long antennae, which are often greater than 67% of the body length. Valley elderberry longhorn beetles differ from other longhorn beetles in coloration and because they are sexually dimorphic (hence the sub-specific name dimorphus). Males range in length from about 0.5 to nearly 1 inch (measured from the front of the head to the end of the abdomen) with antennae about as long as their bodies. Females are slightly more robust than males, measuring about 0.75 to 1 inch, with somewhat shorter antennae. Adult males have red-orange elytra (wing covers) with four elongated spots. The red-orange fades to yellow on some museum specimens. There are four stages in the animal's life: egg, larva, pupa, and adult. Adult females have dark colored elytra. Females lay their eggs on the bark and, after hatching, the larvae burrow into the stems. The larval stage may last for up to two years, after which they metamorphose into the pupae stage, and then transform into adults. Adults are active from March to June, feeding and mating.

The adults are primarily found on or close to elderberry shrubs (*Sambucus* species), it's host plant. Elderberries are found in both riparian and non-riparian situations. In California's Central Valley and adjacent foothills, up to elevations of approximately 3,000 feet AMSL, elderberry shrubs are designated as potential habitat for the Valley elderberry longhorn beetle. Elderberry shrubs must have stems that are 1.0 inch or greater in diameter at ground level to serve as habitat for the beetle. Frequently, the only evidence of the beetle is an exit hole created by the larvae; however, larval galleries have been found in elderberry stems, which had no evidence of exit holes. In those cases, it has been assumed that the larvae either expired before constructing exit holes or were not mature enough to construct exit holes.

Extensive destruction of California's Central Valley riparian forests has occurred during the last 150 years. According to some estimates, riparian forests in the Central Valley have declined by as much as 89%. The Valley elderberry longhorn beetle, though wide-ranging, has been in long-term decline due to human activities that have resulted in widespread alteration and fragmentation of riparian habitats, and to a lesser extent, upland habitats, which support the beetle. Additional threats to the beetle include loss and alteration of habitat by agricultural conversion and grazing; levee construction and stream and river channelization; recreational, industrial and urban development; insecticide and herbicide use; and invasive species such as the Argentine ant, which may eat the larvae and pupae of the beetle. The age and quality of elderberry shrubs (both individual shrubs and stands of shrubs) may contribute to its limited distribution.

Although the valley elderberry longhorn beetle has been recommended for delisting (USFWS 2006) because substantial progress has been made in the recovery of the species, delisting has not yet occurred and all elderberries in the Central Valley and Sierra Nevada foothills are afforded protection (USFWS 1999).

The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield. The beetle appears to be only locally common. Most populations are known from north of Fresno County. There are intergrades of California elderberry longhorn beetles and valley elderberry longhorn beetles known from Fresno, Tulare and Kern counties, and, in fact, Valley elderberry longhorn beetles may simply be a color morph of the California longhorn beetle (Halstead and Oldham 1990).

In the region of the survey area, elderberries are commonly found along streams and creeks and in upland habitats including Non-Native Grassland, Blue Oak Savannah and woodland, and chaparral. The nearest recorded occurrence of the valley elderberry longhorn beetle is approximately two miles to the east.

4.3.1.1. SURVEY RESULTS

On 27 September 2011, biologist Danielle Temple and planner David Duda conducted a biological survey to locate all elderberry shrubs within the project footprint and a 100-foot radius of the project footprint. All elderberry shrubs located within 100 feet of the project site were mapped and inspected for potential exit holes of the Valley elderberry longhorn beetle. The aerial extent of each elderberry shrub crown was delineated with a Trimble Geo XH GPS unit with sub-meter accuracy (see

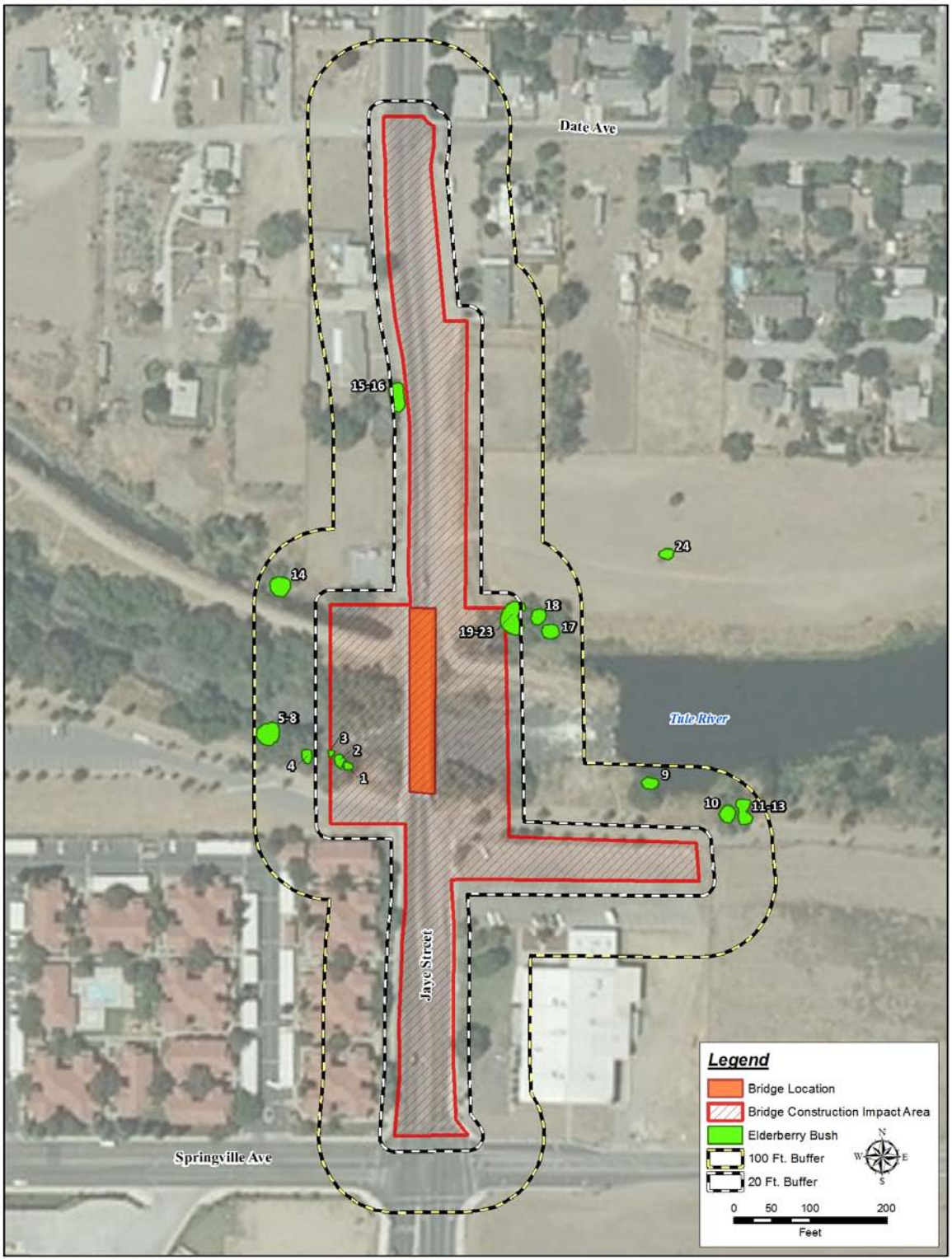
Figure 4). Each elderberry shrub was photographed. General condition and other information were also gathered following standard procedures (USFWS' 1999).

Twenty-three elderberry shrubs with one or more stems > 1 inch in diameter are situated within the project footprint or within 100 feet of the project footprint (Figure 4, Table 2). Eight elderberry shrubs are located within the project footprint, two elderberry shrubs are located within 20 feet of the project footprint, and thirteen elderberry shrubs are located between 20 and 100 feet of the project footprint (Figure 4). One elderberry shrub (ID #24) is located outside of the 100 foot encroachment area but was included because of its close proximity to the project site. Potential exit holes (See Appendix B, Photoplate B-5) were found on seven of the elderberry shrubs, three of which are located within 20 feet of the project site, and three of which are between 20 and 100 feet of the project site. No VELB were observed and it is possible that these exit holes were created by other wood boring insects.

Table 2: Elderberry shrubs found within 100 feet of the Jaye Street Bridge Widening Project, Porterville, Tulare County, California

ID	Stem Counts			Exit holes	Condition	Riparian
	1" - 3"	3" - 5"	>5"			
1	1	2	2	yes	good	yes
2	2	1	3	yes	good	yes
3	3	0	2	yes	good	yes
4	3	2	0	no	good	yes
5	0	0	1	yes	good	yes
6	2	0	0	yes	good	yes
7	1	0	0	yes	good	yes
8	3	0	2	no	fair	yes
9	0	2	0	no	good	yes
10	3	2	1	no	good	yes
11	6	2	1	no	good	yes
12	0	0	3	no	good	yes
13	14	4	0	no	good	yes
14	20	0	0	no	fair	yes
15	0	0	1	no	fair	yes
16	3	1	0	no	fair	yes
17	3	0	0	no	fair	yes
18	2	1	0	no	fair	yes
19	3	0	0	no	fair	yes
20	1	2	0	no	fair	yes
21	0	1	0	no	poor	yes
22	5	1	0	no	fair	yes
23	2	0	2	no	good	yes
24*	4	3	1	yes	good	no

* Elderberry shrub 24 is located outside of the 100 foot encroachment area.



	Locations of all Elderberries found within 100 feet of the Jaye Street Bridge Widening Project	Figure 4

4.3.1.2. AVOIDANCE AND MINIMIZATION EFFORTS

Thirteen elderberry shrubs are located between 20 and 100 feet from the project site. Implementation of the following avoidance and minimization measures will reduce or avoid impacts to VELB:

- Prior to the initiation of ground disturbance, a 4 foot tall, high visibility, temporary exclusionary fence will be installed at the maximum distance feasible for construction occurring within the 100 foot buffer of the elderberries remaining within the work area.
- If any elderberries will be encroached upon within 100 feet, an exclusion fence will be placed no closer than 20 feet from the drip line of the elderberry.
- Any elderberry shrubs that will be encroached upon within 20 feet will be considered to be impacted.
- No work will be conducted within the established exclusion zones. In addition, all vehicle operations will be minimized around these shrubs.
- All equipment will be staged away from the elderberry shrubs, in previously disturbed areas.
- Signs that designate the buffer areas as VELB habitat, and that describe the federal protection status of the species, should be erected every 50 feet along the edge of the avoidance areas
- A qualified biologist, skilled in the identification and habitat needs of the valley elderberry longhorn beetle, shall be present to monitor compliance with avoidance of all elderberries not transplanted or trimmed. The biological monitor shall be present anytime work is conducted in the vicinity of the elderberry shrubs, including trimming and transplanting. If, at any time, elderberry shrub impact avoidance measures are not followed, the biologist shall be given the power to suspend construction operations until such activities are corrected and an alternate course of action is taken that ensures no impacts to the elderberry shrubs will occur.
- Within 30 days after the completion of the project, a compliance report letter that documents the results of the implementation of mitigation measures will be completed and submitted to USFWS.

- Prior to the initiation of ground disturbing activities, a qualified biologist will conduct threatened and endangered species training. Personnel that will be working in the project site will be trained in the life history, habitat requirements, protection status, impact avoidance measures, and penalties under the federal endangered species act for unauthorized take of the Valley elderberry longhorn beetle. A written handout will be provided to construction personnel that will include the above-mentioned information, illustrations and photographs of pertinent aspects of valley elderberry beetle life history. All personnel conducting work in the project site will be required to attend the training prior to working on site. A signup sheet will be maintained that provides written verification of all training meeting attendees.

- All vehicles and equipment entering the project site will be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of off the project site. All construction materials will be staged away from all elderberry shrubs and any spills will be cleaned immediately. No herbicides, fertilizers or other chemicals that may harm the elderberry shrubs shall be used within 100 feet of the shrubs.

- Construction will permanently alter the portions of the 100-foot buffer zones within the work area surrounding the project. Following construction, areas within the buffer zones will be restored to the extent feasible.

4.3.1.3. PROJECT IMPACTS

Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes. An additional 13 elderberry shrubs are located within 100 feet of the project site. Per conservation guidelines for the Valley elderberry longhorn beetle, complete avoidance may be assumed when a 100-foot buffer is established and maintained around elderberry plants containing stems measuring $\geq$ 1 inch in diameter at ground level. The USFWS must be consulted before any disturbances within this buffer area are considered. Encroachment to within 20 feet of elderberry shrubs is often allowable provided that strict restoration and maintenance procedures are implemented.

Elderberry shrubs must be transplanted if they cannot be avoided by project activities. Elderberry shrubs are considered to be impacted if they are removed, pruned, or subjected to project activities within 20 feet of their driplines. Adversely affected elderberry shrubs should be transplanted to a suitable conservation area, and additional seedlings/cuttings should be planted at a compensation ratio pre-determined by the USFWS (Table 3). Compensatory plantings should also include a mix of native plants that are typically found in the understory and overstory of elderberry shrub communities. Compensatory plating ratios for elderberry seedlings/cuttings and associated native plants are dependent upon the maximum stem diameter of the affected elderberry shrub, and upon whether the affected elderberry shrub is in a riparian or non-riparian area and has potential exit holes.

4.3.1.4. COMPENSATORY MITIGATION

Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes (Table 3). These ten elderberry shrubs should be transplanted to a suitable conservation area. In addition, standard compensation plantings (*sensu* USFWS 1999) require that 153 elderberry seedlings/cuttings and 273 container stocks of associated native plants be planted in a conservation area (Table 3). The associated native plants should include both overstory and understory species (Table 4).

Table 3: Compensation Ratios for Impacted Elderberries Found within the Jaye Street Bridge Widening Project Site and within the 20 feet of the Project Site

	Stem Counts							Proposed Compensation		
ID	1" - 3"	3" - 5"	>5"	exit holes?	condition	riparian?	Elderberry seedling ratios	Elderberry seedlings/ cuttings	Associated native plant ratios (per elderberry seedling)	Native plants
1	1	2	2	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	32	2:1	64
2	2	1	3	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	38	2:1	76
3	3	0	2	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	28	2:1	56
15	0	0	1	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	4	1:1	4
16	3	1	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	9	1:1	9
19	3	0	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	6	1:1	6
20	1	2	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	8	1:1	8
21	0	1	0	no	poor	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	3	1:1	3
22	5	1	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	13	1:1	13

23	2	0	2	no	good	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	12	1:1	12
							Totals	153		251

Table 4: Associated Native Species to be Planted in the 2.25 Acre Elderberry Conservation Area

Species	Common Name	# of Cuttings or Seedlings
Quercus lobata	Valley oak	55
Salix lasiolepis	Arroyo willow	34
Vitus californica	California wild grape	54
Cercis occidentalis	Redbud	54
Rubus ursinus	California blackberry	54
	Total	**251**

Establishment of Conservation Area

The conservation area should provide at least 1,800 square feet for each transplanted elderberry shrub (USFWS 1999). As many as 5 elderberries and 5 associated native plants may be planted within the 1,800 square foot area. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Therefore, the conservation area should cumulatively encompass a minimum of 90,720 feet (2.08 acres).

Long-term Maintenance and Monitoring of Conservation Area

The conservation area and plantings will continue to be monitored by means of two site visits by a qualified biologist between February 14th and June 30th of each of the 10 years succeeding the emplacement of the additional cuttings, seedlings and transplanted elderberry shrubs. Surveys will include a population census of any beetles or exit holes observed, an evaluation of conservation plantings, and a general assessment of the habitat, adequacy of protection measures, etc., as specified in the USFWS VELB conservation guidelines (1999). A report detailing the results of these surveys should be submitted by December 31st of each year of monitoring to the USFWS and the California Department of Fish and Game, and monitoring should continue to occur on this schedule. Successful conservation will be assumed if 60 percent of the elderberry plants and 60 percent of the associated native plants survive. If survival drops below 60 percent, the City must replace failed plantings within one year to bring survival above this level.

4.3.1.5. CUMULATIVE EFFECTS

Other projects which impact VELB would be expected to provide compensation and incorporate avoidance and mitigation measures. As such it can reasonably be

concluded that no cumulative impacts to VELB will occur as a result of construction of the proposed project.

4.3.2. Bald eagle

The Bald eagle is a State of California Endangered species , but it has no federal status. It is also a CDFG Fully Protected Species, protected by the Bald and Golden Eagle Protection Act and the MBTA. The USFWS published five bald eagle recovery plans for various regions of the United States. The Pacific Bald Eagle Recovery Plan covered the western states including California (USFWS 1986). The Final Rule to de-list the bald eagle was published by the USFWS in the Federal Register on July 9, 2007 (Vol, 72, No. 130).

The bald eagle, our national symbol, is the second largest bird of prey in North America; only the California condor is larger. Early explorers reported bald eagles as widely abundant throughout their range, but their population numbers decreased dramatically in the first part of the 20th century. Shooting and the paying of bounties was a major contributor to their decline as was DDT (Dichlorodiphenyltrichloroethane) poisoning. After legal protections were put into place, their numbers increased and they were recently de-listed by the United States Fish and Wildlife Service (USFWS 2007d, see above).

Bald eagles are best described as opportunistic foragers and their food habits vary according to local conditions and prey availability. Bald eagles do prefer fish to other vertebrates, but they also prey on mammals and birds. Given their opportunistic feeding behavior, bald eagles scavenge on carrion to a greater degree than most other raptors and they will pilfer food from other raptors. Carrion is an important source of food during the winter or when fish are scarce (Buehler 2000, Kaufman 1996).

Bald eagles typically nest in large, mature trees in close proximity to rivers, lakes, and reservoirs. Breeding season begins in February and continues through July. Clutch size averages two and they produce only one brood per season (Buehler 2000).

Bald eagles winter throughout the lower 48 states and in southern Canada and Alaska. The breeding range in California is primarily confined to the northern half of the state, particularly from the central Sierra Nevada north to the southern Cascades and Coast Ranges. Population levels have increased over the last 20 years to such a degree that the USFWS has de-listed this species.

4.3.2.1. SURVEY RESULTS

Lake Success, located approximately 6.5 miles to the east of the project site, is the only potentially suitable breeding habitat in the area. However, Bald eagles have not been documented utilizing Lake Success, nor are there CNDDB records of Bald Eagles within 75 miles of the project site, but they have been observed in Yokohl Valley, approximately 17 miles to the north (Curt Uptain, pers. comm.). This species is most likely to be a transient in this area. No bald eagles were observed at the project site or in the vicinity. Habitat on site is marginal, and there is a low potential for occurrence of this species.

4.3.2.2. AVOIDANCE AND MINIMIZATION EFFORTS

Avoidance and minimization measures are not warranted.

4.3.2.3. PROJECT IMPACTS

Given that no bald eagles were observed within the BSA, the project has a low potential to significantly impact this species.

4.3.2.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted for this species.

4.3.2.5. CUMULATIVE EFFECTS

There will be no cumulative effects to this species.

4.3.3. Swainson's hawk

The Swainson's hawk is a State of California Threatened species and it is also protected by the MBTA.

The Swainson's hawk is a large, slender soaring hawk of the open plains, prairies, and ranchlands. Sexes are similar in size and average 19 inches in total length with an average wingspread of 51 inches. This species occurs in three different color morphs—light, dark, and rufous colored. They are long-distance migrants—nearly the entire summer breeding population moves from central North America to winter grounds in the pampas of South America, primarily Argentina.

Swainson's hawks forage in open plains and grassland ecosystems. They also forage in agricultural areas containing crops of hay, grain, and certain low growing row crops. During the summer breeding season, and while they are feeding young, Swainson's hawks prey mostly on small vertebrates, but the diet shifts to large arthropods (especially grasshoppers and dragonflies) during much of the rest of the year.

Swainson's hawks typically nest in solitary, mature trees such as oaks, cottonwoods, willows, and eucalyptus. Nests are often near or in riparian corridors and are usually near foraging areas. Swainson's hawks exhibit high nest fidelity, returning to the same nest year after year. The breeding season begins in late March and lasts through August. Clutch size averages two to four eggs and they produce only one brood per season (England et al. 1997).

The California Swainson's Hawk Inventory: 2005-2006 is a collaborative research project directed by the CDFG and the University of California, Davis Wildlife Health Center to inventory the current population levels of Swainson's hawks statewide (Anderson, Dinsdale and Schlorff 2007). The goal of the study is to provide a robust estimate of the number of breeding pairs in California, which in turn will provide state and federal agencies with information necessary to make informed decisions regarding development and growth within California. That inventory contains no records of Swainson's hawk nests south of Madera County. Certainly, there are some Swainson's hawk pairs south of Madera County, but they occur at such low densities that they are difficult to census.

4.3.3.1. SURVEY RESULTS

There are no CNDDB record for Swainson's hawks within 15 miles of the project area. Although habitat within the BSA is suitable to support this species, there were no Swainson's hawks observed in the vicinity of the BSA during the site surveys. Nonetheless, the Swainson's hawk is known to occur in low numbers in the southern San Joaquin Valley and it could occur on or near the project site as an occasional transient forager.

4.3.3.2. AVOIDANCE AND MINIMIZATION EFFORTS

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and

potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds. Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG.

- All trees which are suitable for Swainson's hawk nesting that are within 2,640 feet of construction activities shall be inspected for nests by a qualified biologist.
- If potential Swainson's hawk nests are located, surveys to determine whether Swainson's hawks use those nests will be determined by conducting surveys at the following intensities, depending upon dates of initiation of construction:

Construction start	Survey period	Number of surveys	Timing
1 January to 20 March	1 January to 20 March	1	All day
21 March to 24 March	1 January to 20 March	1	All day
	21 March to 24 March	Up to 3	Sunrise to 1000 and 1600 to sunset
24 March to 5 April	1 January to 20 March	1	All day
	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
6 April to 9 April	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 9 April	Up to 3	Sunrise to 1000 and 1600 to sunset
	1 January to 20 March	1 (if all 3 surveys are performed between 6 and 9 April, then this survey need not be conducted)	All day
10 April to 30 July	21 March to 5 April	3	Sunrise to 1000 and 1600 to sunset
	6 April to 20 April	3	Sunrise to 1200 and 1630 to sunset
31 July to 15 September	6 to 20 April	3	Sunrise to 1200 and 1630 to sunset
	10 to 30 July	3	Sunrise to 1200 and 1600 to sunset

A nest can be eliminated as a potential Swainson's hawk nest if another species of raptor is using the nest.

- If Swainson's hawks are detected to be nesting in trees within 600 feet of the construction area, construction will not occur within this zone until after young Swainson's hawks have fledged (this usually occurs by early June). The nest will be monitored by a qualified biologist to determine fledging date. If Swainson's hawks are found within the project area, the project site would be considered foraging habitat and compensation for foraging habitat would be required by CDFG at a ratio of 0.75 to 1 (0.75 acre for every 1.0 acre adversely affected); and

- If other raptors are found nesting within 250 feet of the construction area, construction will be postponed until after young have fledged. The date of fledging will be determined by a qualified biologist. If construction cannot be delayed within this zone, the CDFG will be consulted and alternative protection measures required by the CDFG will be followed.

- The removal of trees shall not occur during the breeding season (February 1st to September 15th). Trees slated for removal during the breeding season shall be surveyed by a qualified biologist prior to removal to ensure that there are no nesting birds occupying the tree.

4.3.3.3. PROJECT IMPACTS

Construction activities, including potential tree removal could impact Swainson's hawk and other raptors and migratory birds, as these species are sensitive to disturbance, particularly during the nesting season.

4.3.3.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted for this species.

4.3.3.5. CUMULATIVE EFFECTS

Other projects with potential to impact Swainson's hawk would be required to implement avoidance and minimization measures. It can be reasonably concluded that there will be no cumulative effects to this species.

4.3.4. Swallows

Swallows (*Petrochelidon pyrrhonota*) do not have any California or federal status; however, they are protected by the MBTA.

This bird averages 5 inches long with a tiny bill. The adult swallow has an iridescent blue back and crown, brown wings and tail, and buff rump. The nape and forehead are white. The underparts are white except for a red face. The tail is square-ended.

Young birds are essentially brown above and whitish below, except for the buff rump and dark face. The swallow breeds in a variety of habitats with open foraging areas and cliffs or buildings for nesting. Swallows breed in large colonies. They build conical mud nests and lay three to six eggs. The natural nest sites are on cliffs, preferably beneath overhangs. This species has always been plentiful in the west of North America, where there are many natural sites.

4.3.4.1. SURVEY RESULTS

Swallow nests were observed attached to the underside of the Jaye Street Bridge. No swallows were observed during the surveys, but swallows are migratory and generally do not return to the San Joaquin valley until approximately mid-March. It is likely that swallows will inhabit the nests under the bridge from March through August or September. Most of the nests did appear to have been recently used, likely as recently as the last nesting season.

4.3.4.2. AVOIDANCE AND MINIMIZATION EFFORTS

It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.

- If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.
- Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated.
- Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be used.

- Weekly scalping, between February 15 and September 1, of partially completed nests is permitted to discourage nesting.
- If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

4.3.4.3. PROJECT IMPACTS

The proposed project has the potential to significantly impact this species during the nesting season (February 15 through September 1). Federal and State laws protect migratory birds, their occupied nests, and their eggs from destruction. The applicable Federal law is the Migratory Bid Treat Act (15 USC 703-711), 50 CFR Part 21, and 50 CFR Part 10. Protection under California Law is found in the Fish Game code Section 3503, 3513, and 3800. Any persons responsible for violating these laws may be arrested by a representative of the Department of the Interior or a California Department of Fish and Game warden. Any person found guilty shall be fined up to $10,000 or serve a six-month imprisonment, or both.

4.3.4.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted for this species.

4.3.4.5. CUMULATIVE EFFECTS

Other projects with potential to impact swallows would be required to implement avoidance and minimization measures. It can be reasonably concluded that there will be no cumulative effects to this species.

4.3.5. Pallid bat

The pallid bad is listed as a California Species of Special Concern and it has no ederal status. This species is not currently addressed by a recovery plan.

The pallid bat has large eyes compared to many other North American bats, and its ears are pale and wide. Its fur varies from a pale cream color to light brown dorsally and is white on the venter. The skull is large and the teeth are heavy and robust. The snout of the pallid bat is square and has a ridge on the top. The bat has a total length of 3.5 to 5.5 inches, a wing span of 13 to 15 inches, and a forearm length of 1.9 to 2.3 inches (Hermanson and O'Shea 1983).

Pallid bats become sexually mature at about two years of age. Their breeding season occurs from October to February with females storing the resultant sperm until the first two weeks in April, when ovulation and fertilization take place. Twins are usually born and birth generally takes place during the first half of June. The weight of young at birth is from 3 to 3.5 grams. Within four or five weeks, the young bats are capable of short flights and by eight weeks they attain full adult size (Hermanson and O'Shea 1983).

Female bats roost with their young, while male bats remain separated from the colony until the newborn bats are weaned. Communication between colony members is largely achieved by vocalizations.

Pallid bats leave the day roost about a hour after sunset to forage. They consume up to half their weight in insects every night. They rarely catch flying insects, but instead usually capture prey from foliage or on the ground. Pallid bats typically feed on beetles, crickets, scorpions, and other insects and small arthropods (Hermanson and O'Shea 1983).

The pallid bat is usually found in rocky, montainous areas and near water. They are also found over more open, sparsely vegetated grasslands, and seem to prefer to forage in open areas. The pallid bat has three different roosts. The day roost is usually in a warm, horizontal openning such as in attics or rock cracks; the night roost is usually in trees with light foliage; and the hibernation roost is often in buildings, caves, or cracks in rocks (Hermanson and O'Shea 1983).

The pallid bat ranges throughout western North America, from British Columbia's southern interior, south to Queretaro and Jalisco Mexico, and east to Texas. An isolated population, A. p. koopmani, is endemic to Cuba. Pallid bats inhabit rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, desert shrublands, juniper woodlands, grasslands and coniferous forests. They are most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (Sherwin 2005).

4.3.5.1. SURVEY RESULTS

The nearest CNDDB record of pallid bats to the project site is approximately 6.5 miles to the east at Lake Success. There is a single record of the pallid bat located in Clough Cave in Sequoia National Park at a distance greater than 10 miles from the BSA. Pallid bats may forage over the BSA within the understory or trees, or on the

ground, but the habitat for foraging is marginal. The habitat of the BSA does not include rocky areas suitable for day roosting, and the bridge had a flat bottom and therefore is structurally lacking in areas that would offer optimal roosting opportunities for bats. There are trees within the BSA in which these bats might roost at night, although it is unlikely that palid bats would roost in trees because they generally roost in large colonies. The BSA, including the existing bridge, was surveyed for bats or sign of bats, such as urine staining or guano accumulations below potential roost sites. No bats or sign of bats were observed in the BSA.

4.3.5.2. AVOIDANCE AND MINIMIZATION EFFORTS

- Pre-construction surveys for bats of the bridge by a qualified biologist are required prior to bridge removal to ensure that bats have not moved into the bridge.

- If bats are found to occupy the bridge during pre-construction surveys, a bat eviction and mitigation plan has to be prepared in consultation the CDFG. In this event the existing bridge cannot be removed until all bats have been successfully evicted and adequate mitigation measures, such as bat houses or a bat friendly bridge design, have been approved by the CDFG.

4.3.5.3. PROJECT IMPACTS

The project will not result in impacts to pallid bats, unless bats are found during pre-construction surveys. If bats are found to occupy the bridge during pre-construction surveys, a bat eviction and mitigation plan has to be prepared in consultation the CDFG. The existing bridge cannot be modified until all bats have been successfully removed and adequate mitigation measures, such as bat houses or a bat friendly bridge design, have been approved by the CDFG.

4.3.5.4. COMPENSATORY MITIGATION

Compensatory mitigation is not warranted.

4.3.5.5. CUMULATIVE EFFECTS

Other projects with potential to impact pallid bat species would be required to implement avoidance and minimization measures. It can be reasonably concluded that there will be no cumulative effects to this species.

4.3.6. Western mastiff bat

The western mastiff bat is listed as a California Species of Concern and it has no federal status. This species is not currently addressed by a recovery plan.

This is the largest native bat of the United States with a body length of 5.5 to 7.5 inches and a wingspan of over 22 inches. The wings, as in other members of the Family Molossidae, are distinctively long and narrow. The fur is dark brown with white hairs at the base. The ears are large and joined at the base and extend out over the forehead like a bonnet. Its echolocation call is audible to humans.

This bat reproduces in late winter to early spring, and gives birth to one young per year. While most young are born in early July, parturition dates vary extensively and births are not synchronous, even within colonies. Adults of both sexes can be found together throughout the year. Colony size varies from two or three individuals to several dozen. Twenty individuals is a large colony of these bats, although colonies of up to 70 are known. Just before launching themselves into flight, and during flight, the bats utter a series of loud, shrill, chattering calls that can be heard for a considerable distance.

The mastiff bat roosts in crevices in cliff faces, high buildings, trees and tunnels. This bat seeks diurnal refuge in crevices in rocks that form vertical or nearly vertical cliffs. The roost entrances typically are horizontally oriented, have moderately large openings, and face downward so they can be entered from below. When roosting in rock crevices, a vertical face is needed to drop off to take flight. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters.

The mastiff bat occurs in many semi-arid to arid habitats, including dry desert washes, flood plains, conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, montane meadows, palm oases, chaparral, desert scrub, urban, and agricultural areas (Pierson 2005); however, this bat is most commonly encountered in broad, open areas.

Observations indicate that males and females of this species remain together throughout the year, even during the period when young are produced. Normally only one young is produced per pregnancy, but occasionally a female may give birth to twins. The period of parturition probably extends from June to early July and a nursery colony may contain young ranging from newborn individuals to ones that are several weeks old. At birth the young are dull black in color.

These bats leave their day roosts late in the evening to forage. The primary prey of western mastiff bats are moths (79.9 percent) and crickets (16.5 percent). Grasshoppers, bees, dragonflies, leafbugs, beetles, and cicadas have also been reported in their diet. These bats do not use night roosts, but instead soar at great altitudes all night long so that they can feed over wide areas.

The western mastiff bat has a disjunct distribution, with two subspecies confined to South America. The subspecies that occurs in North America, *E. p. californicus*, ranges from central Mexico across the southwestern United States (parts of California, southern Nevada, Arizona, southern New Mexico and western Texas). Recent surveys have extended the previously known range into northern Arizona (several localities near the Utah border) and northern California (to within a few miles of the Oregon border). Distribution in Nevada and southern Utah is not well understood. Published information suggests that the species occurs at elevations less than 1,200 feet AMSL in California, and less than 3,600 feet AMSL in Texas; however, foraging *E. perotis* have been found at up to 10,000 feet AMSL in the southern Sierra Nevada. *E. perotis* tends to be present only where there are significant rock features which offer suitable roosting habitat. It is found in a variety of habitats, from desert scrub to chaparral to oak woodland and into the ponderosa pine belt and high elevation meadows of mixed conifer forests (Pierson 2005).

The western mastiff bat ranges from the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, and from the Pacific Coast eastward to the Colorado Desert.

4.3.6.1. SURVEY RESULTS

There is a CNDDB record from Lake Success, approximately 5 miles to the east of the project site. Cliff faces, which are the typical roosting habitat for this species are absent from the BSA. There are trees within the BSA which could support roosts for individuals of this species, although they typically roost in colonies. No sign of bats were observed under the existing bridge or in tall trees or other areas within the BSA. Because site conditions within the BSA are generally unsuitable to support this species, except as a transient forager, this bat species is considered to be absent from the BSA.

4.3.6.2. AVOIDANCE AND MINIMIZATION EFFORTS

Avoidance and minimization measures are not warranted.

4.3.6.3. PROJECT IMPACTS

The proposed project will not significantly impact this bat species.

4.3.6.4. COMPENSATORY MITIGATION

Compensatory mitigation is not warranted.

4.3.6.5. CUMULATIVE EFFECTS

There will be no cumulative effects to this species.

4.3.7. American badger

The American badger is a California Species of Special Concern and it has no federal status. This species is not currently addressed by a recovery plan.

Adult badgers measure 30 to 35 inches in length, including a short furry tail averaging 5.5 inches. Their bodies are wide and give a flat-backed appearance. Colors are mostly gray, with a grizzled effect due to long guard hairs that have a black band ending in a white tip. Their "underfur" is either a light tan, or a creamy white. A white stripe from the nose leads between the eyes and back over the head of the badger, ending between the shoulders. Ears are set low along the sides of the head. Lower legs and feet are black in color. Badgers walk on their toes (digitigrade) with a characteristic, rolling gait.

Their front paws are rotated laterally and their long claws facilitate rapid digging, which they frequently use to capture prey. They can tunnel after ground dwelling rodents with amazing speed (Zeiner et al., 1990). Badgers primarily prey on pocket gophers, ground squirrels, moles, marmots, prairie dogs, woodrats, kangaroo rats, deer mice, and voles. They also prey on ground nesting birds, such as bank swallows and burrowing owls. They also eat lizards, amphibians, carrion, fish, hibernating skunks, insects, including bees and honeycomb, and some plant foods, such as corn and sunflower seeds.

Mating occurs in late summer or early autumn but embryos are arrested early in development. Implantation is delayed until December or as late as February. After this period, embryos implant into the uterine wall and resume development. Although a female is technically pregnant for seven months, gestation is a mere six weeks. Litters of one to five offspring, with an average of three, are born in early

spring. Females are able to mate when they are four months old, but males do not mate until the autumn of their second year. Most females mate after their first year.

The range of the American badger extends across most of the western two-thirds of the United States. They are found throughout California, from high alpine meadows to sea level (or below in Death Valley, California). They are solitary creatures and occur in low densities throughout their range.

4.3.7.1. SURVEY RESULTS

The CNDDB shows that there are records of American badgers 3 miles to the southwest of the project site. No sign of badgers were found during field surveys. No dens were observed in the project vicinity. If badgers utilize the project area, it is likely to be as transients.

4.3.7.2. AVOIDANCE AND MINIMIZATION EFFORTS

Because there is the potential for American badger to occur within the BSA as a transient forager, the USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance shall be followed (these measures also protect American badger). The measures that are listed below have been excerpted from those guidelines and will protect American badger from direct mortality and from destruction of active dens and natal or pupping dens.

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the American badger. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude American badger. The area within any such fence must be determined

to be uninhabited by American badger prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of badgers or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured badger is discovered, the procedures in this section must be followed.

- Badgers are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.

- No firearms shall be allowed on the project site.

- To prevent harassment, mortality of badgers or destruction of dens by dogs or cats, no pets shall be permitted on the project site.

- 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 badger, or who finds a dead, injured or entrapped individual. The representative's name and telephone number shall be provided to the USFWS and CDFG.

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice.

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures an American badger shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist.

- The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to an American badger 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

4.3.7.3. PROJECT IMPACTS

The proposed project has a low potential to significantly impact this species.

4.3.7.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted.

4.3.7.5. CUMULATIVE EFFECTS

Other projects with potential to impact American badger species would be required to implement avoidance and minimization measures. It can be reasonably concluded that there will be no cumulative effects to this species.

4.3.8. San Joaquin kit fox

The San Joaquin kit fox is a Federally Endangered and California Threatened species. The San Joaquin kit fox is addressed in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998).

The San Joaquin kit fox is one of 10 recognized North American subspecies of Vulpes. The kit fox is the smallest fox in North America, with an average body length of 20 inches and weight of about five pounds. They have large ears that are set close together, a slim body, and long bushy tail that is carried low and straight, and which is black-tipped. Their coat ranges from a buff-tan in the summer to silver-grey in the winter with the undersides varying from light buff to white in color (USFWS 1998).

San Joaquin kit foxes are active year-round and inhabit grassland, scrubland, oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities. Kit foxes are also known to occur in extensively modified habitats such as oil fields and wind turbine facilities (USFWS 1998). Kit foxes are present, but generally less abundant, in other highly modified landscapes such as agricultural row crops, irrigated pastures, orchards, and vineyards

The kit fox requires underground dens for temperature regulation, shelter, reproduction, and predator avoidance. Kit foxes commonly modify and use dens constructed by other animals and human-made structures. Dens are usually located on loose-textured soils on slopes less than 40 degrees, but the characteristics (number of openings, shape, slope, aspect) of dens vary across the fox's geographic range. Kit foxes dig their own dens, but also use those constructed by other animals. They also frequently use human-made structures (culverts, abandoned pipelines, or banks in sumps or roadbeds) as den sites.

The kit fox diet is varied and is based upon prey abundance, but usually consists of kangaroo rats (*Dipodomys spp*.), pocket mice (*Perognathus spp*.), white-footed mice (*Peromyscus spp.)*, and other nocturnal rodents. Kit foxes also prey on black-tailed hares (*Lepus californicus*), San Joaquin antelope squirrels (*Ammospermophilus nelsoni*), desert cottontails (*Sylvilagus audubonii*), ground-nesting birds, and insects (USFWS 1998).

Adult pairs of foxes stay together throughout the year and can begin breeding at one year of age. During September and October, females begin to clean and enlarge their pupping dens and mating usually occurs between December and March. Litters of two to six pups are born between February and late March, with pups emerging from the den after about a month.

Prior to 1930, San Joaquin kit foxes inhabited most of the San Joaquin Valley from southern Kern County north to eastern Contra Costa County and eastern Stanislaus

County (USFWS 1998). By 1930 it was believed that the kit fox range had been reduced by more than half, with the largest remaining portion being in the western and southern portions of the San Joaquin Valley (USFWS 1998).

Today many of these communities are represented only by small, degraded remnants. The current range of San Joaquin kit foxes is primarily limited to suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains and on the Carrizo and Elkhorn Plains. They occur on isolated parcels of natural lands in Kern, Tulare, Kings, Fresno, Madera, San Benito, Merced, Stanislaus, San Joaquin, Alameda, and Contra Costa counties.

4.3.8.1. SURVEY RESULTS

The CNDDB records San Joaquin kit fox within 5 miles of the BSA. These records date from the 1970's and 1980's. No sign of kit fox was found during site surveys. It is unlikely San Joaquin kit fox would utilize this site because they tend to avoid riparian area due to potential competition from other predators and they are typically a grassland and open habitat species. However, they may be present on the site as a transient forager.

4.3.8.2. AVOIDANCE AND MINIMIZATION EFFORTS

Because there is the potential for San Joaquin kit fox to occur within the BSA as a transient forager, the USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance shall be followed (these measures also protect American badger). The measures that are listed below have been excerpted from those guidelines and will protect San Joaquin kit fox from direct mortality and from destruction of active dens and natal or pupping dens.

- Pre-construction surveys shall be conducted no fewer than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, or any project activity likely to impact the San Joaquin kit fox. Exclusion zones shall be placed in accordance with USFWS Recommendations using the following:

Potential Den	50 foot radius
Known Den	100 foot radius
Natal/Pupping Den (Occupied and Unoccupied)	Contact U.S. Fish and Wildlife Service for guidance
Atypical Den	50 foot radius

- Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city and county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Nighttime construction shall be avoided, unless the construction area is appropriately fenced to exclude San Joaquin kit fox. The area within any such fence must be determined to be uninhabited by San Joaquin kit fox prior to initiation of construction. Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase 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, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such 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 procedures in this section must be followed.

- San Joaquin kit fox are attracted to den-like structures such as pipes and may enter stored pipe, becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for badgers before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a badger 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 once to remove it from the path of construction activity, until the badger has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a week from a construction or project site.

- No firearms shall be allowed on the project site.

- To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets shall be permitted on the project site.

- 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 individual. The representative's name and telephone number shall be provided to the USFWS and CDFG.

- In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS and CDFG should be contacted for advice.

- Any contractor, employee(s), or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped badger. The CDFG contact for immediate assistance is State Dispatch at (916) 445 0045. They will contact the local warden or biologist.

- The Sacramento Fish and Wildlife Office and CDFG will 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, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846, and (916) 414-6620. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, CA 95814, (916) 654-4262.

4.3.8.3. PROJECT IMPACTS

The proposed project has a low potential to significantly impact this species.

4.3.8.4. COMPENSATORY MITIGATION

No compensatory mitigation is warranted.

4.3.8.5. CUMULATIVE EFFECTS

Other projects with potential to impact American badger species would be required to implement avoidance and minimization measures. It can be reasonably concluded that there will be no cumulative effects to this species.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Prior to construction, the permits and special provisions summarized in Table 5 may be required:

Table 5: Project Permits and Special Provisions

Potential Impact	Permit Anticipated	Issuing Agency
Water Quality	CWA Section 404 - Water Quality Certification	United States Army Corp of Engineers
Water Quality	CWA Section 401-Water Quality Certification; National Pollutant Discharge Elimination System Permit	California Regional Water Quality Control Board, Central Valley Region
Work within Bed, Bank and Channel of the Tule River Impacts GVMRF	Streambed Alteration Agreement -1602	California Department of Fish and Game
Encroachment within jurisdiction of Central Valley Flood Protection Board	Encroachment Permit	Central Valley Flood Protection Board
VELB, bats, San Joaquin kit fox, American badger, swallows, raptors, migratory birds, Environmentally Sensitive Area (ESA)	Contract Special Provisions	Caltrans

5.2. Federal Endangered Species Act Consultation Summary

A USFWS special-status species list for the BSA and a 10 mile radius of the BSA was accessed in September 2011. No federally listed plant or animal species were observed during surveys. However, habitat for the VELB a federally listed species was determined to be absent within the BSA. Although the VELB was not observed on site, exit holes on the VELB were noted indicating the potential presence of this species. Accordingly, consultation with the USFWS is warranted.

5.3. Federal Fisheries and Essential Fish Habitat Consultation Summary

No federally listed fish species were evaluated in this report, no suitable habitat is present for any federally listed fish species. The project will have no impact to any federally protected fish species. Accordingly, consultation with National Marine Fisheries Service (NOAA Fisheries) is not warranted.

5.4. California Endangered Species Act Consultation Summary

Six plant species, one invertebrate species, two amphibian species, one reptile species, three bird species and 10 mammal species are State listed sensitive species known to occur within 10 miles of the BSA (CNDDB). Of these species, six wildlife species, the Bald eagle, the Swainson's hawk, the Pallid bat, the Western mastiff bat, the American badger, and the San Joaquin kit fox are inferred to be present in the BSA, based on the proximity of recorded sightings and the presence of suitable habitat. Other State listed species are included in CNDDB records, but have no suitable habitat in the BSA. Consultation with the State for the Bald eagle, the Swainson's hawk, the Pallid bat, the Western mastiff bat, the American badger, and the San Joaquin kit fox is required to determine adequate avoidance and minimization measures to avoid impacts to these special status species. Impacts to these species are not expected and thus no formal consultation under the California Endangered Species Act has been initiated with the CDFG. A CDFG 2081 Take Permit is not anticipated, but its need will be determined in consultation with the CDFG.

5.5. Wetlands and Other Waters Coordination Summary

No wetlands occur in or near the BSA, and no impacts to wetlands will result from project activities. However, the Tule River is a jurisdictional Water of the United States. Design plans will involve work within the OHWM. An ACOE 404 Nationwide Permit is required as the project will have cut and fill activities below the OHWM.

5.6. California Department of Fish and Game Consultation Summary

The BSA includes riparian habitat as well as a sensitive community, GVMRF, and construction activities could impact trees within this habitat, including cottonwoods and willow trees. A CDFG Notification of Lake or Streambed Alteration (1600 permit) will need to be prepared and submitted to CDFG. In addition, CDFG will be consulted to discuss potential impacts to sensitive species. Avoidance and mitigation measures, including appropriate compensation as outlined in a Revegetation and Restoration Plan will be determined by the CDFG in consultation with the City of Porterville.

5.7. Invasive Species

Two invasive plant species were observed in the BSA. They are Castor bean (Ricinus communis) and giant reed (Arundo donax). These species were found to the east of the bridge along the south bank of the river. These species are considered a noxious weeds in California, and are also listed on the California Invasive Plant Inventory.

Preventing the introduction of invasive plants into the BSA is the most cost-effective strategy in controlling the spread of these plants. Agencies at the federal, state, and county level have begun to establish and implement policies and practices to reduce the potential for the introduction of invasive species. Although the importance of avoiding spreading invasive plants through the use of construction equipment is recognized, most policies and practices in this state are limited to controlling invasive plants in coastal and agricultural areas. Some measures can be taken to reduce the introduction and spread of invasive plants in any environment. In order to prevent the spread of invasive plants from outside the BSA to the project site, the following measures are recommended:

- Wash all vehicles and heavy equipment, including tires and undercarriage, and hand held tools such as shovels and rakes, which have been used off-site before bringing them into the BSA
- Vacuum and clean the interior of vehicles and heavy equipment that have been used off-site before bringing them into the BSA
- Clean personal gear and clothing, including footwear that have been worn off-site before bringing them into the BSA

- Do not transport soil or other fill material from off-site locations unless it is known that they do not contain viable seed material
- Use only approved seeds and seedlings when restoration is required. Prepare soils appropriately to encourage new seeds and plants to survive
- Import only certified weed-free material for temporary erosion control, such as sterile straw wattles or weed-free, sterile rice straw.

5.8. Protections for Nesting/Migratory Birds

Migratory birds, including raptors such as red-tailed hawks and coopers hawks could nest in the riparian corridor along the Tule River. Cliff swallows are also considered migratory birds. Two Cooper's hawks observed within the project vicinity during the September 2011 survey. There is habitat present that could potentially support the State protected Swainson's hawk. During the September 2011 survey, swallow nests were observed attached to the underside of the Jaye Street Bridge. No swallows were observed during the surveys, but swallows are migratory and generally do not return to the San Joaquin valley until approximately mid-March. It is likely that swallows will inhabit the nests under the bridge from March through August or September. While these species are not protected under federal or state endangered species acts, CDFG codes (Sections 3503, 3513, and 3800) do protect them from harassment or harm, and also protect their eggs and nestlings. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by CDFG.

Federal law also protects raptors and their nests. The Federal Migratory Bird Treaty Act (15 USC 703-711), 50 CFR Part 21, and 50 CFR Part 10, prohibits killing, possessing or trading in migratory birds. Executive Order 13186 (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The following avoidance and minimization measures will be implemented to avoid impacts to nesting and migratory birds:

- A pre-construction survey shall be conducted to determine the presence of nesting birds if ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 500 feet of the site shall be surveyed 14 to 30 days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds.

Construction shall not occur within a 500 foot buffer surrounding nests of raptors or a 250 foot buffer surrounding nests of migratory birds. If construction within these buffer areas is required or if nests must be removed to allow continuation of construction, then approval will be obtained from CDFG. The CDFG may need to be contacted to determine the appropriate buffer and a biologist may need to monitor the nesting activity to ensure proper avoidance measures have been implemented.

- Any trees scheduled for removal during the nesting season from February 15th to September 1st must first be inspected by a qualified biologist prior to removal. Active nest trees cannot be removed until nesting has been completed or removal has been deemed permissible by a biologist

It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.

- If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows.

- Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated.

- Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be used.

- Weekly scalping, between February 15 and September 1, of partially completed nests is permitted to discourage nesting.

- If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted.

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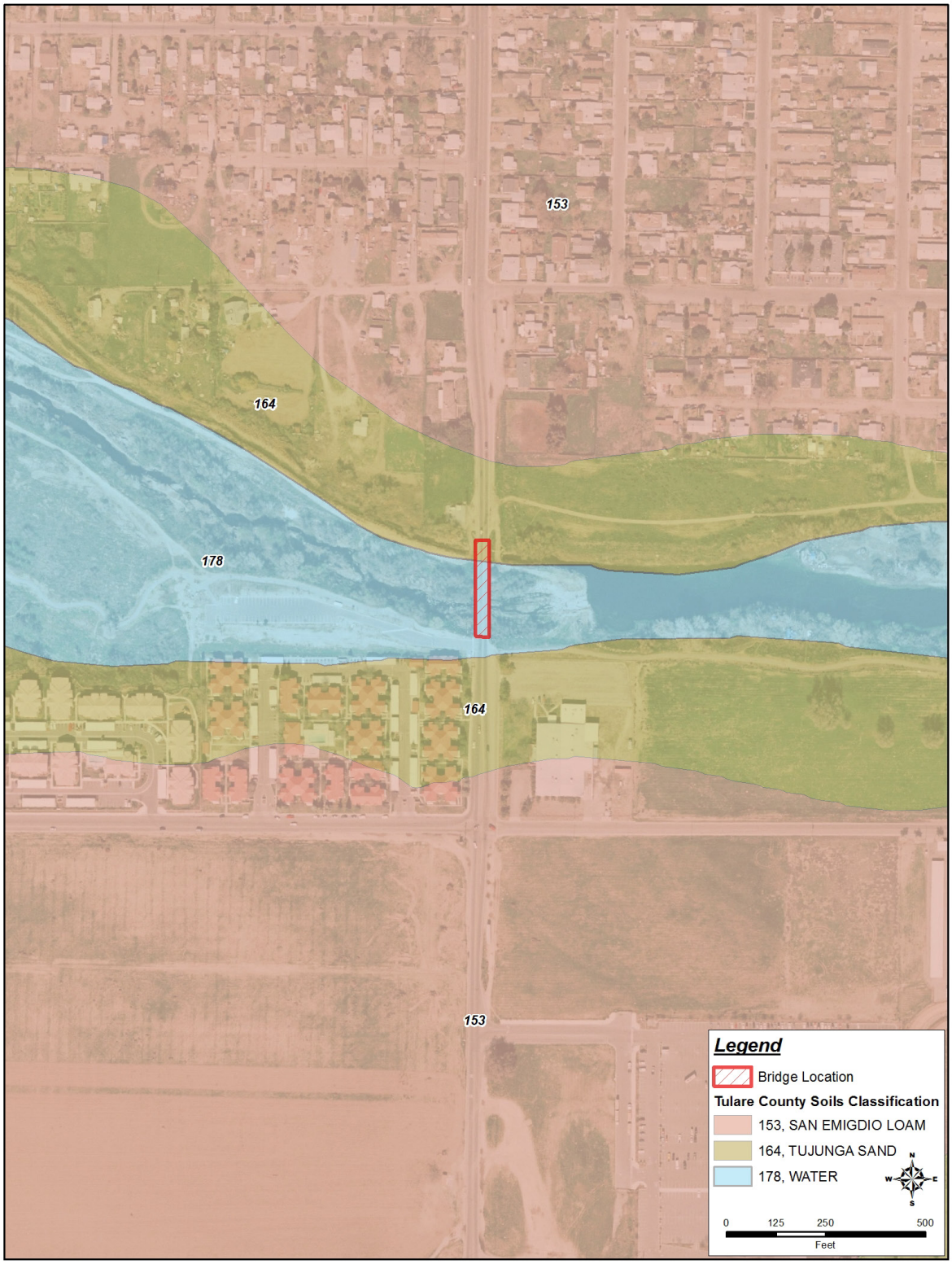
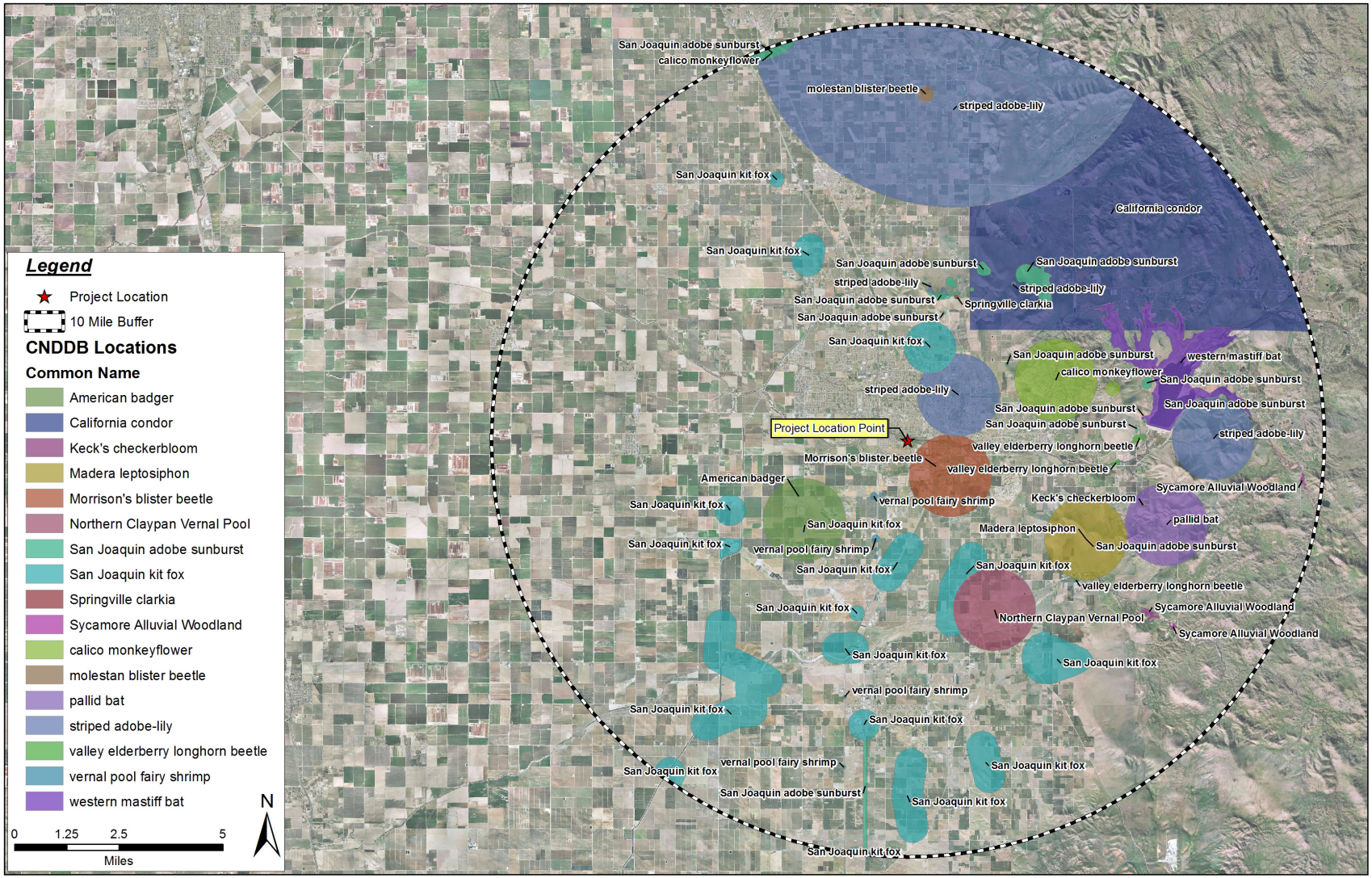
Appendix A Project Maps

	100-YEAR FLOOD MAP OF THE JAYE STREET BRIDGE WIDENING PROJECT SITE, PORTERVILLE, CALIFORNIA	Figure A - 1

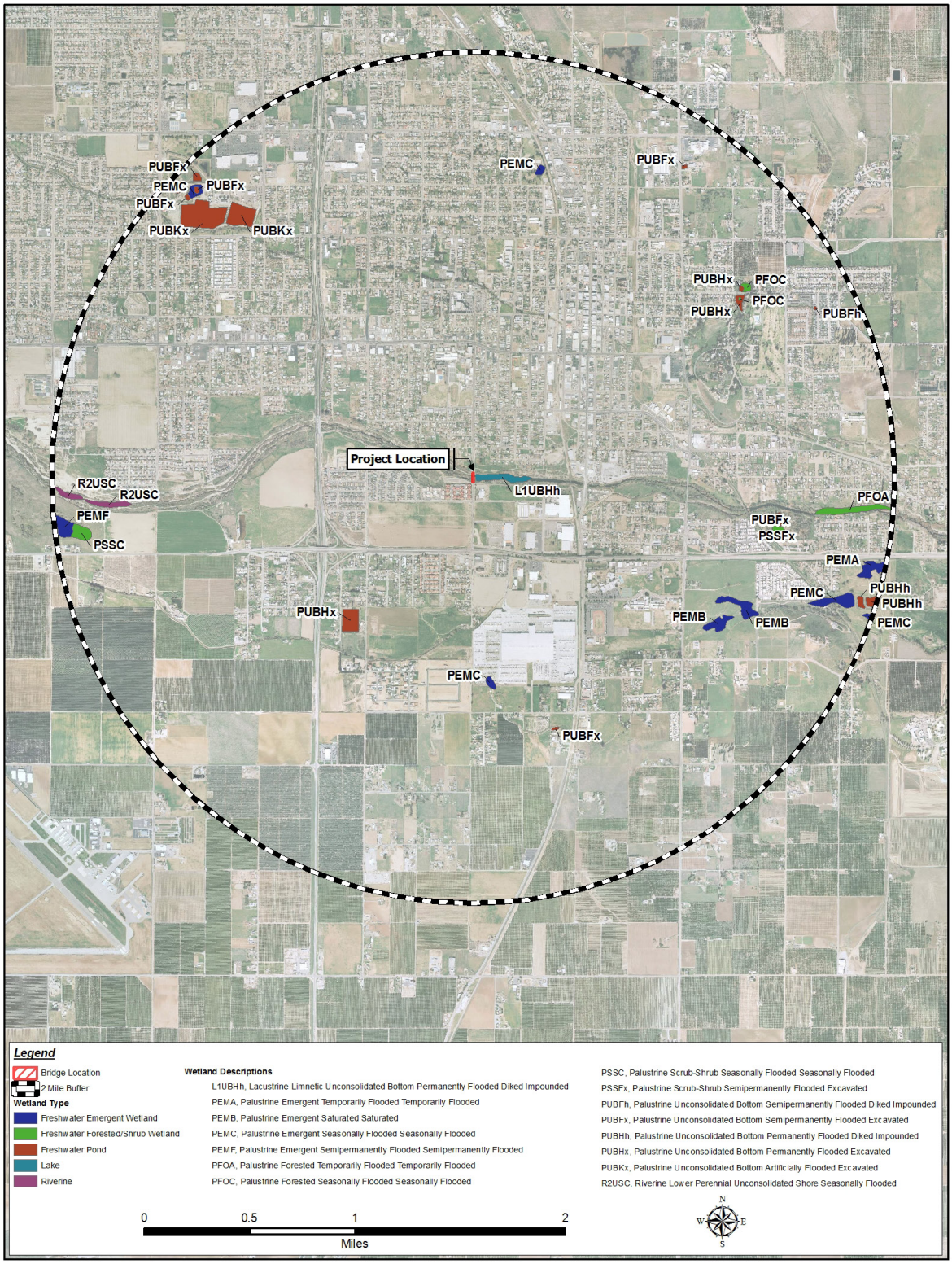


	SOILS MAP OF THE VICINITY OF THE JAYE STREET BRIDGE WIDENING PROJECT SITE, PORTERVILLE, CALIFORNIA	Figure A - 2



CNDDB RECORDS OF SPECIAL STATUS SPECIES
KNOWN WITHIN TEN MILES OF THE JAYE STREET BRIDGE WIDENING PROJECT
SITE, PORTERVILLE, CALIFORNIA

Figure
A - 3



	KNOWN WETLANDS WITHIN TWO MILES OF THE JAYE STREET BRIDGE WIDENING PROJECT SITE, PORTERVILLE, CALIFORNIA	Figure A - 4

	ORDINARY HIGH WATER MARK ALONG THE TULE RIVER NEAR THE JAYE STREET BRIDGE WIDENING PROJECT SITE, PORTERVILLE, CALIFORNIA	Figure A - 5

Appendix B Representative Site Photos of the Jaye Street Bridge Biological Study Area

Looking downstream from current bridge

Looking upstream from current bridge

Adjacent to the west side of the existing Jaye Street Bridge

View looking downstream towards existing Jaye Street Bridge,

Adjacent to the east side of existing Jaye Street Bridge

Tule River channel, below Ordinary High Water Mark

Elderberry shrub located within the Biological Study Area

Elderberry shrub located within the Biological Study Area

Bore holes found in elderberry bush

Remnant swallows nest underneath existing Jaye Street Bridge

Photoplate B-2

Appendix C List of Plant and Wildlife Species Observed on the Jaye Street Bridge Biological Study Area

Appendix C

Jaye Street Bridge Widening Project

List of Species Observed

Species	Common Name
Plants:	
Agrostis stolonifera	Creeping bentgrass
Ailanthus altissima	Tree-of-heaven
Amsinckia menziesii var. *menziesii*	Fiddleneck
Arundo donax	Giant reed
Cucurbita foetidissima	Buffalo gourd
Cynodon dactylon	Bermuda grass
Cyperus eragrostis	Tall flatsedge
Equisitum hyemale ssp. *affine*	Scouringrush
Fraxinus latifolia	Oregon ash
Gnaphalium luteo-alba	Everlasting cudweed
Helianthus annuus	Common sunflower
Hirschfeldia incana	Shortpod mustard
Lolium multiflorum	Perennial rye
Malva parviflora	Little mallow
Mimulus guttatus	Seepspring monkeyflower
Phalaris caroliniana	Carolina canarygrass
Paspallum dilatatum	Dallisgrass
Platanus racemosa	Sycamore
Polygonum persicaria	Ladysthumb
Polypogon monspeliensis	Rabbitfoot polypogon
Populus fremontii	Fremont's cottonwood
Rubus discolor	Himalayan blackberry
Rumex crispus	Curly dock
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Sambucus mexicana	Blue elderberry
Setaria gracilis	Knotroot foxtail
Sonchus asper	Prickly sowthistle
Sorghum halpense	Johnson grass
Urtica dioica	Stinging nettle
Xanthium strumarium	Common cocklebur
Wildlife Species:	
Accipiter cooperii	Cooper's hawk

Appendix D USFWS Federal Endangered and Threatened Species that Occur in or May Be Affected by the Project

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 110927120052

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)

Fish

- Hypomesus transpacificus
  - delta smelt (T)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)
- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)
- Thamnophis gigas
  - giant garter snake (T)

Birds

- Empidonax traillii extimus
  - southwestern willow flycatcher (E)
- Gymnogyps californianus
  - California condor (E)
  - Critical habitat, California condor (X)

Mammals

- Dipodomys nitratoides nitratoides
  - Tipton kangaroo rat (E)
- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

Plants

- Caulanthus californicus
  - California jewelflower (E)

-
- Clarkia springvillensis
  - Springville clarkia (T)
- Pseudobahia peirsonii
  - San Joaquin adobe sunburst (T)
- Sidalcea keckii
  - Critical habitat, Keck's checker-mallow (X)
  - Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Amphibians

- Rana muscosa
  - mountain yellow-legged frog (C)

Quads Containing Listed, Proposed or Candidate Species:

GIBBON PEAK (286A)
FOUNTAIN SPRINGS (286B)
DUCOR (287A)
SAUSALITO SCHOOL (287B)
SPRINGVILLE (309A)
FRAZIER VALLEY (309B)
SUCCESS DAM (309C)
GLOBE (309D)
LINDSAY (310A)
CAIRNS CORNER (310B)
WOODVILLE (310C)
PORTERVILLE (310D)

County Lists

Tulare County

Listed Species

Invertebrates

- Branchinecta lynchi
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)

- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)

- Lepidurus packardi
  - Critical habitat, vernal pool tadpole shrimp (X)
  - vernal pool tadpole shrimp (E)

Fish

- Oncorhynchus (=Salmo) aquabonita whitei

    - Critical habitat, little Kern golden trout (X)
    - Little Kern golden trout (T)

Amphibians

- Ambystoma californiense
    - California tiger salamander, central population (T)
    - Critical habitat, CA tiger salamander, central population (X)

- Rana draytonii
    - California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
    - blunt-nosed leopard lizard (E)

- Thamnophis gigas
    - giant garter snake (T)

Birds

- Gymnogyps californianus
    - California condor (E)
    - Critical habitat, California condor (X)

Mammals

- Dipodomys ingens
    - giant kangaroo rat (E)

- Dipodomys nitratoides exilis
    - Fresno kangaroo rat (E)

- Dipodomys nitratoides nitratoides
    - Tipton kangaroo rat (E)

- Ovis canadensis californiana
    - Sierra Nevada (=California) bighorn sheep (E)

- Vulpes macrotis mutica
    - San Joaquin kit fox (E)

Plants

- Chamaesyce hooveri
    - Critical habitat, Hoover's spurge (X)
    - Hoover's spurge (T)

- Clarkia springvillensis
    - Springville clarkia (T)

- Orcuttia inaequalis

    - Critical habitat, San Joaquin Valley Orcutt grass (X)

- Pseudobahia peirsonii
    - San Joaquin adobe sunburst (T)

- Sidalcea keckii
    - Critical habitat, Keck's checker-mallow (X)
    - Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Amphibians

- Rana muscosa
    - mountain yellow-legged frog (C)

Mammals

- Martes pennanti
    - fisher (C)

Plants

- Abronia alpina
    - Ramshaw sand-verbena (C)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Appendix C2

Biological Memorandum

Quad Knopf

MEMO

Date: October 4, 2011 **Project No.:** Jaye Street Bridge Environmental Compliance/080092

To: Travis Crawford

From: Danielle Temple

Subject: Survey of elderberries within the Jaye Street Bridge project area, Porterville, California

cc: Curtis Uptain

INTRODUCTION

The City of Porterville has proposed to widen the existing Jaye Street Bridge in Porterville, California. The Jaye Street Bridge is located on Jaye Street between Date Street and Springville Street. The Jaye Street Bridge crosses the Tule River. The bridge will be widened from two lanes to four lanes, and the paved approaches to the bridge will be reconstructed. The project's footprint includes the existing bridge, the bridge approaches, and 100 feet on either side of the bridge and the bridge approaches (Figure 1). Staging areas are located within an existing paved parking lot to the southeast of the bridge and within a dirt parking area located to the northeast of the bridge. Jaye Street will be impacted between the bridge and Date Street.

In 2008, Quad Knopf biologist Gene "Woody" Moise conducted biological surveys for sensitive species within the project area. Seven elderberry shrubs were identified within the project footprint. Elderberry shrubs are the exclusive habitat for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a federally threatened species. Any elderberry with one or more stems that are $\geq$ 1 inch in diameter are considered to be potential habitat for the valley elderberry longhorn beetle (VELB), and as such require a 100 foot complete avoidance area that will not be encroached upon by project activities (*Sensu* Conservation Guidelines for the Valley Elderberry Longhorn Beetle, USFWS 1999). If project plans require encroachment within 100 feet of an elderberry mitigation measures are required by the United States Fish and Wildlife Service. No other sensitive species were identified within the project area, but potential habitats for sensitive species were identified.

The City of Porterville is now applying for State and federal permits for the project, which requires updating the biological surveys including:

1. A survey for elderberry shrubs within the project footprint and a 100-foot radius of the project footprint,
2. A survey for nesting raptors within 1,000 feet of the project site
3. A survey for swallow nests located under the existing bridge
4. A survey for bats roosting under the existing bridge

This memo report identified the methods used and results of the biological survey update.

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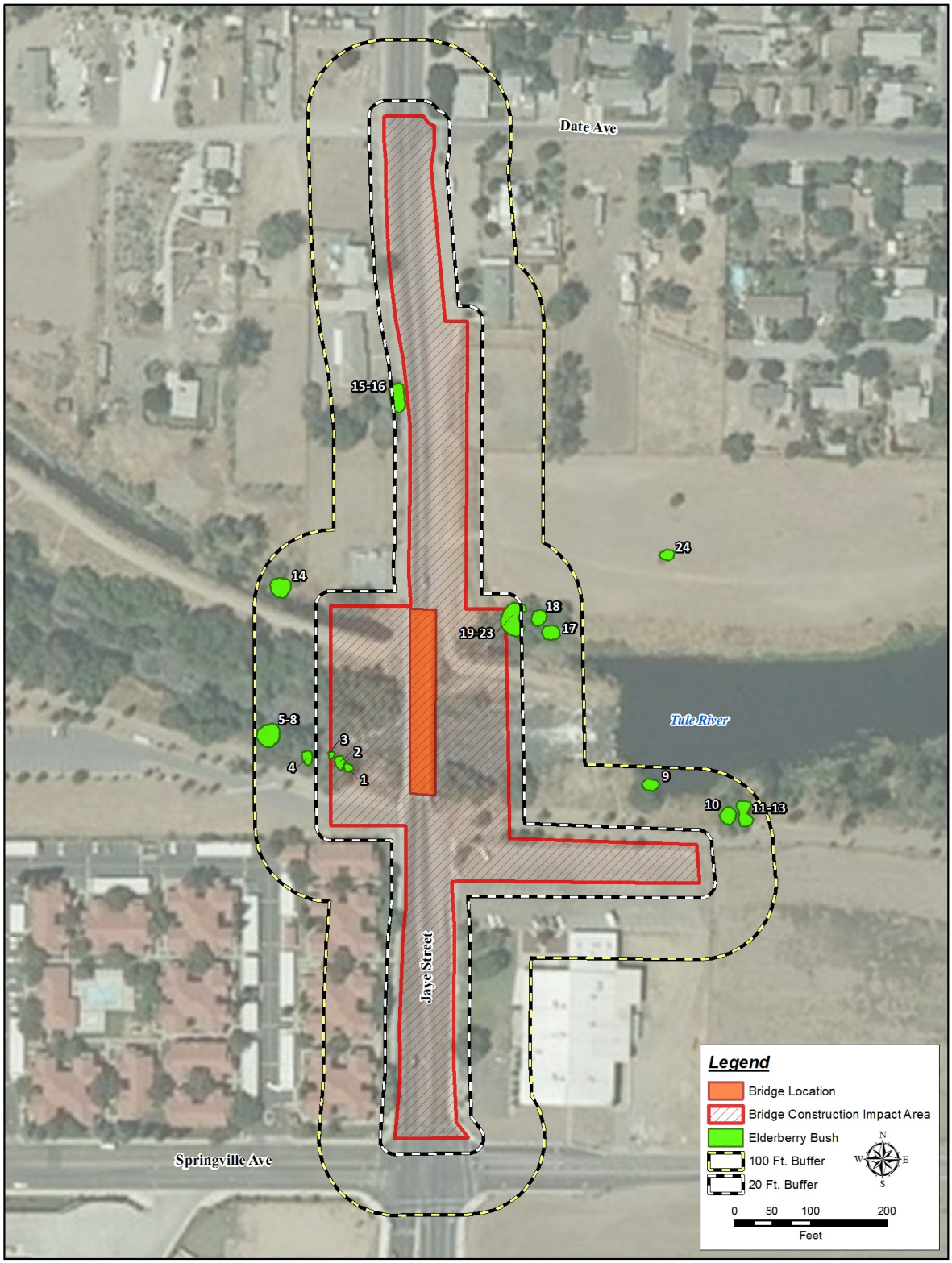

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LOCATIONS OF ALL ELDERBERRIES FOUND WITHIN 100 FEET OF THE JAYE STREET BRIDGE WIDENING PROJECT

Figure 1

METHODS

On September 27, 2011, Quad Knopf biologist Danielle Temple and planner David Duda conducted a biological survey to locate:

1. All elderberry shrubs (*Sambucus Mexicana)* within the project footprint and a 100-foot radius of the project footprint,
2. Any raptor nests and/or raptors occurring within 1,000 feet of the project site,
3. Any roosting bats, and identify the potential for roosting bats at the existing bridge structure, and
4. Any swallow (*Petrochelidon pyrrhonota)* nests on the existing bridge structure.

VELB Surveys

All elderberry shrubs located within 100 feet of the project site were mapped and inspected for diagnostic sign (e.g., potential exit holes) of the Valley elderberry longhorn beetle. The aerial extent of each elderberry shrub crown was delineated with a Trimble Geo XH GPS unit with sub-meter accuracy. Each elderberry shrub was photographed. General condition and other information were also gathered following standard procedures (USFWS' 1999).

Raptor Surveys

All large trees that could support a raptor nest within a 1,000-foot radius of the project site were inspected for raptor nests. All raptors observed near the project site were recorded.

Bat and Swallow Surveys

The underside of the existing bridge was inspected for any sign of use by bats or nesting birds. All overhanging structures and gaps between bridge sections on the underside of the bridge were closely inspected. The ground and support structures beneath the bridge were inspected for the presence of guano.

RESULTS

The Jaye Street Bridge is located in an urban setting in the City of Porterville, Tulare County, California. The north and south approaches to the bridge are dominated by residential areas that are landscaped with ornamental species and/or ruderal vegetation. The area surrounding the bridge is dominated by riparian vegetation. The overstory and midstory consist of willow (*Salix sp.*), cottonwood (*Populus fremontii*), and elderberry. The understory is dominated by wild grape (*Vitis sp.*) and blackberry (*Rubus sp.*).

VELB

Twenty-three elderberry shrubs with one or more stems ≥ 1 inch in diameter are situated within the project footprint or within 100 feet of the project footprint (Figure 1, Table 1). Eight elderberry shrubs are located within the project footprint, two elderberry shrubs located within 20 feet of the project footprint, and thirteen elderberry shrubs are located between 20 and 100 feet of the project footprint (Figure 1). One elderberry shrub (ID #24) is located outside of the 100 foot encroachment area but was included because of its close proximity to the project site. Potential exit holes (Figure 2) were found on seven of the elderberry shrubs, three of which are located within 20 feet of the project site, and three of which are between 20 and 100 feet of the project site. No VELB were observed and it is possible that these exit holes were created by other wood boring insects.

Table 1
Elderberry shrubs found within 100 feet of the Jaye Street Bridge Widening Project, Porterville, Tulare County, California

ID	Stem Counts			Exit holes	Condition	Riparian
	1" - 3"	3" - 5"	>5"			
1	1	2	2	yes	good	yes
2	2	1	3	yes	good	yes
3	3	0	2	yes	good	yes
4	3	2	0	no	good	yes
5	0	0	1	yes	good	yes
6	2	0	0	yes	good	yes
7	1	0	0	yes	good	yes
8	3	0	2	no	fair	yes
9	0	2	0	no	good	yes
10	3	2	1	no	good	yes
11	6	2	1	no	good	yes
12	0	0	3	no	good	yes
13	14	4	0	no	good	yes
14	20	0	0	no	fair	yes
15	0	0	1	no	fair	yes
16	3	1	0	no	fair	yes
17	3	0	0	no	fair	yes
18	2	1	0	no	fair	yes
19	3	0	0	no	fair	yes
20	1	2	0	no	fair	yes
21	0	1	0	no	poor	yes
22	5	1	0	no	fair	yes
23	2	0	2	no	good	yes
24*	4	3	1	yes	good	no

* Elderberry shrub 24 is located outside of the 100 foot encroachment area.

Raptor Surveys

Two Cooper's hawks (*Accipiter cooperii*), one juvenile and one adult, were initially observed perched in a willow tree within 1,000 feet of the project site (Figure 3). The adult Cooper's hawk was later observed perching in a cottonwood tree (*Populus fremontii*) west of the project site on the bank of the Tule River (Figure 3). This tree was observed to contain a potentially historic raptor nest, thus indicating that the vicinity of the project site may potentially support breeding raptors during the breeding season (loosely defined as February 15 to September 15).

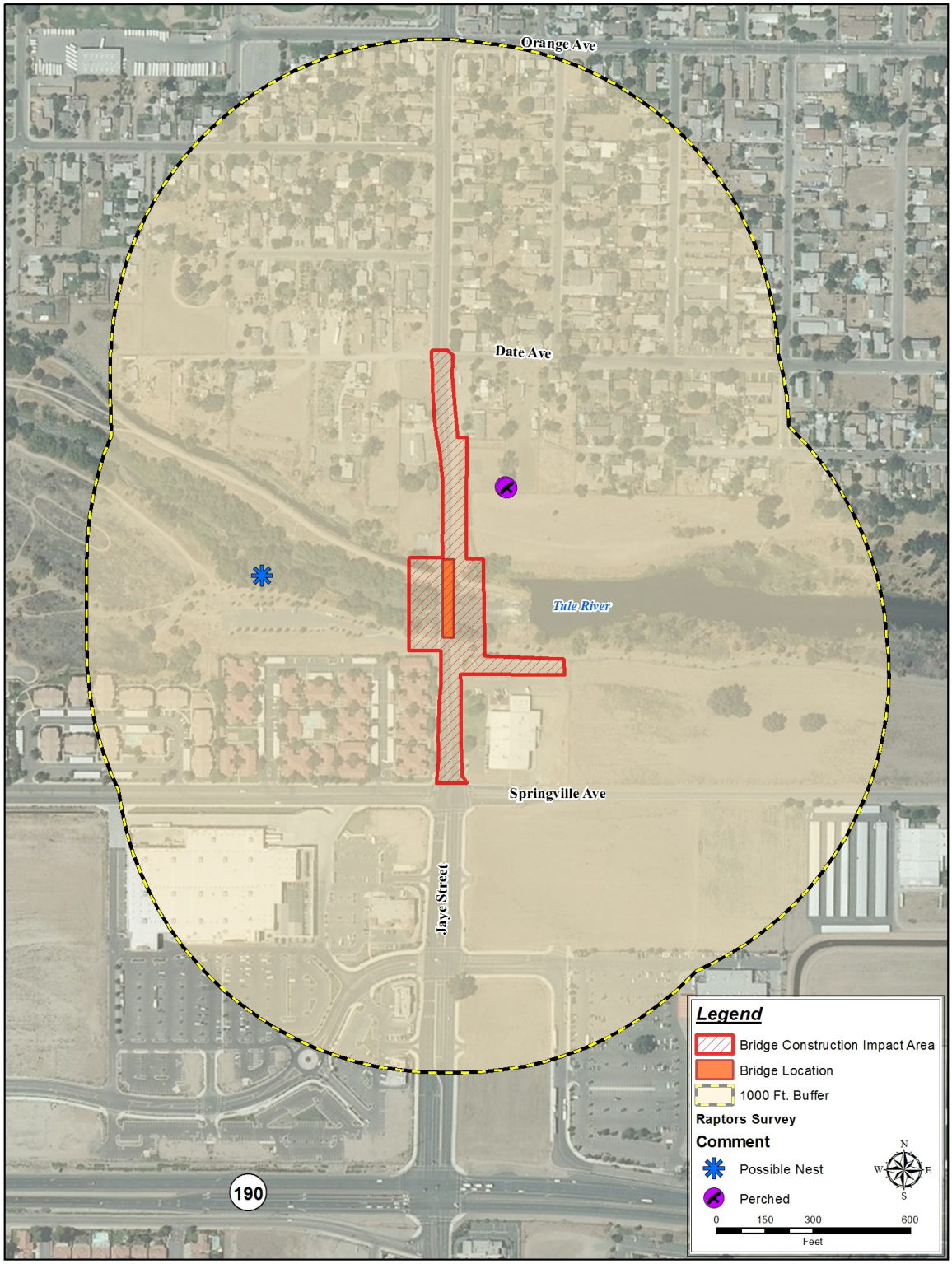
Bat Surveys

No bats, or potential roosting habitat for bats, were observed under the bridge. The bridge has a flat bottom and it is structurally lacking areas that would offer roosting opportunities for bats. Day or night roosting bats are not likely to use this bridge.

Swallow Surveys

There are swallow nests attached to the underside of the Jaye Street Bridge (Figure 4). No swallows were present during the surveys, but swallows are migratory and are generally present in the San Joaquin Valley between mid-March and mid-September, with the exact timing dependent upon weather conditions and annual migratory patterns. It is likely that swallows inhabit the nests under the bridge from March through August or September. Most of the nests did appear to have been used during the 2011 nesting season.

Quad Knopf	EXAMPLE OF EXIT HOLES FOUND ON ELDERBERRIES WITHIN THE JAYE STREET BRIDGE WIDENING PROJECT	Figure 2



Quad Knopf

POTENTIAL RAPTOR NEST AND TREE WHERE TWO COOPER'S HAWKS WERE OBSERVED PERCHING NEAR THE PROJECT SITE

Figure 3

Quad Knopf	EXAMPLES OF SWALLOW NESTS THAT WERE IDENTIFIED ON THE UNDERSIDE OF THE JAYE STREET BRIDGE	Figure 4

IMPACTS AND RECOMMENDED PROTECTION, AVOIDANCE, AND COMPENSATION MEASURES

Valley Elderberry Longhorn Beetle

Eight elderberry shrubs are located on the project site. Two elderberry shrubs are located within 20 feet of the project site, and an additional 13 elderberry shrubs are located within 100 feet of the project site. Per conservation guidelines for the Valley elderberry longhorn beetle (USFWS 1999), complete avoidance may be assumed when a 100-foot buffer is established and maintained around elderberry plants containing stems measuring ≥ 1 inch in diameter at ground level. The USFWS must be consulted before any disturbances within this buffer area are considered. Encroachment to within 20 feet of elderberry shrubs is often allowable provided that strict restoration and maintenance procedures are implemented (Appendix A).

Elderberry shrubs must be transplanted if they cannot be avoided by project activities. Elderberry shrubs are considered to be impacted if they are removed, pruned, or subjected to project activities within 20 feet of their driplines. Adversely affected elderberry shrubs should be transplanted to a suitable conservation area, and additional seedlings/cuttings should be planted at a compensation ratio pre-determined by the USFWS (Table 2). Compensatory plantings should also include a mix of native plants that are typically found in the understory and overstory of elderberry shrub communities. Compensatory plating ratios for elderberry seedlings/cuttings and associated native plants are dependent upon the maximum stem diameter of the affected elderberry shrub, and upon whether the affected elderberry shrub is in a riparian or non-riparian area and has potential exit holes (Appendix A).

AVOIDANCE OF ELDERBERRY SHRUBS DURING CONSTRUCTION

Thirteen elderberry shrubs are located between 20 and 100 feet from the project site. Prior to the initiation of ground disturbance, a 4 foot tall, high visibility, temporary exclusionary fence will be installed at the maximum distance feasible for construction occurring within the 100 foot buffer of the elderberries remaining within the work area. If any elderberries will be encroached upon within 100 feet, an exclusion fence will be placed no closer than 20 feet from the drip line of the elderberry. Any elderberry shrubs that will be encroached upon within 20 feet will be considered to be impacted. No work will be conducted within the established exclusion zones. In addition, all vehicle operations will be minimized around these shrubs. All equipment will be staged away from the elderberry shrubs, in previously disturbed areas. Signs that designate the buffer areas as VELB habitat, and that describe the federal protection status of the species, should be erected every 50 feet along the edge of the avoidance areas.

ON-SITE BIOLOGICAL MONITORING DURING CONSTRUCTION

A qualified biologist, skilled in the identification and habitat needs of the valley elderberry longhorn beetle, shall be present to monitor compliance with avoidance of all elderberries not impacted. The biological monitor shall be present anytime work is conducted in the vicinity of

the elderberry shrubs, including trimming and transplanting. If, at any time, elderberry shrub impact avoidance measures are not followed, the biologist shall be given the power to suspend construction operations until such activities are corrected and an alternate course of action is taken that ensures no impacts to the elderberry shrubs will occur. In addition, within 30 days after the completion of the project, a compliance report letter that documents the results of the implementation of mitigation measures will be completed and submitted to USFWS.

WORKER TRAINING PROGRAM

Prior to the initiation of ground disturbing activities, a qualified biologist will conduct threatened and endangered species training. Personnel that will be working in the project site will be trained in the life history, habitat requirements, protection status, impact avoidance measures, and penalties under the federal endangered species act for unauthorized take of the Valley elderberry longhorn beetle. A written handout will be provided to construction personnel that will include the above-mentioned information, illustrations and photographs of pertinent aspects of valley elderberry beetle life history. All personnel conducting work in the project site will be required to attend the training prior to working on site. A sign-up sheet will be maintained that provides written verification of all training meeting attendees.

CONTAINMENT OF POTENTIAL ENVIRONMENTAL CONTAMINANTS

All vehicles and equipment entering the project site will be in good working condition and free from leaks. In the event that a vehicle or equipment item is found to be leaking fluid, operation of the vehicle or equipment item shall be terminated and it shall be repaired or replaced. If possible, repairs should be conducted in a contained area. All contaminated soil will be collected and properly disposed of off the project site. All construction materials will be staged away from all elderberry shrubs and any spills will be cleaned immediately. No herbicides, fertilizers or other chemicals that may harm the elderberry shrubs shall be used within 100 feet of the shrubs.

RESTORATION AND MAINTENANCE

Construction will permanently alter the portions of the 100-foot buffer zones within the work area surrounding the project. Following construction, areas within the buffer zones will be restored to the extent feasible.

TRANSPLANTING AND COMPENSATORTY PLANTINGS

Ten elderberry shrubs will be directly impacted by project activities. Eight of these are located on the project site, and two are located within 20 feet of its perimeter. Three of these shrubs had potential exit holes (Table 2). These ten elderberry shrubs should be transplanted to a suitable conservation area. In addition, standard compensation plantings (*sensu* USFWS 1999) require that 153 elderberry seedlings/cuttings and 273 container stocks of associated native plants be planted in a conservation area (Table 2). The associated native plants should include both overstory and understory species (Table 3).

Table 2
Compensation Ratios for Impacted Elderberries Found within the Jaye Street Bridge Widening Project Site and within the 20 feet of the Project Site

	Stem Counts							Proposed Compensation		
ID	1" - 3"	3" - 5"	>5"	exit holes?	condition	riparian?	Elderberry seedling ratios	Elderberry seedlings/ cuttings	Associated native plant ratios (per elderberry seedling)	Native plants
1	1	2	2	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	32	2:1	64
2	2	1	3	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	38	2:1	76
3	3	0	2	yes	good	yes	stems 1"-3"= 4:1 stems 3"-5"= 6:1 stems >5' = 8:1	28	2:1	56
15	0	0	1	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	4	1:1	4
16	3	1	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	9	1:1	9
19	3	0	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	6	1:1	6
20	1	2	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	8	1:1	8
21	0	1	0	no	poor	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	3	1:1	3
22	5	1	0	no	fair	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	13	1:1	13
23	2	0	2	no	good	yes	stems 1"-3"= 2:1 stems 3"-5"= 3:1 stems >5' = 4:1	12	1:1	12
							Totals	**153**		**251**

Table 3
Associated Native Species to be Planted in the 2.25 Acre Elderberry Conservation Area

Species	Common Name	# Cuttings or Seedlings
Quercus lobata	Valley oak	55
Salix lasiolepis	Arroyo willow	34
Vitus californica	California wild grape	54
Cercis occidentalis	Redbud	54
Rubus ursinus	California blackberry	54
	Total	**251**

ESTABLISHMENT OF A CONSERVATION AREA

The conservation area should provide at least 1,800 square feet for each transplanted elderberry shrub (USFWS 1999). As many as 5 elderberries and 5 associated native plants may be planted within the 1,800 square foot area. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Therefore, the conservation area should cumulatively encompass a minimum of 90,720 feet (2.08 acres).

LONG-TERM MAINTENANCE AND MONITORING OF CONSERVATION AREA

The conservation area and plantings will continue to be monitored by means of two site visits by a qualified biologist between February 14th and June 30th of each of the 10 years succeeding the emplacement of the additional cuttings, seedlings and transplanted elderberry shrubs. Surveys will include a population census of any beetles or exit holes observed, an evaluation of conservation plantings, and a general assessment of the habitat, adequacy of protection measures, etc., as specified in the USFWS VELB conservation guidelines (1999). A report detailing the results of these surveys should be submitted by December 31st of each year of monitoring to the USFWS and the California Department of Fish and Game, and monitoring should continue to occur on this schedule. Successful conservation will be assumed if 60 percent of the elderberry plants and 60 percent of the associated native plants survive. If survival drops below 60 percent, the City must replace failed plantings within one year to bring survival above this level.

Swallow Nests

It is anticipated that swallows may try to nest on the bridge between February 15 and September 1. If any work is anticipated on said structure during this period, the Contractor shall take such measures as necessary to prevent nesting on portions of the structure that will cause a conflict between performing necessary work and nesting swallows. Swallows shall be allowed to nest on portions of the bridge where conflicts during construction are not anticipated. Prior to February 15, existing nests shall be removed or exclusionary devices such as netting shall be

used. Weekly scalping, between February 15 and September 1, of partially completed nests is permitted to discourage nesting. If new nests are built or existing nests become occupied, then any work that would interfere with or discourage swallows from returning to their nests will not be permitted. Federal and State laws protect migratory birds, their occupied nests, and their eggs from destruction. The applicable Federal law is the Migratory Bid Treat Act (15 USC 703-711), 50 CFR Part 21, and 50 CFR Part 10. Protection under California Law is found in the Fish Game code Section 3503, 3513, and 3800. Any persons responsible for violating these laws may be arrested by a representative of the Department of the Interior or a California Department of Fish and Game warden. Any person found guilty shall be fined up to $10,000 or serve a six-month imprisonment, or both.

Raptor Surveys

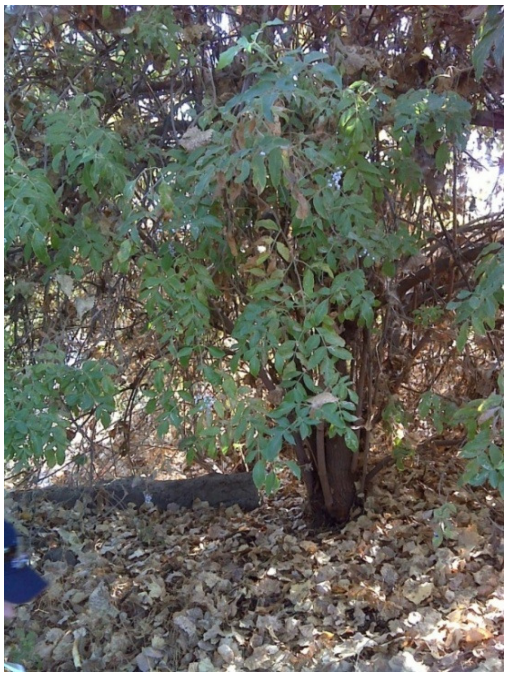
The raptor survey was conducted outside of the breeding season. The consequent reduced raptor activity, as well as the limited visibility caused by tree-leafing, therefore precludes this survey from serving as an adequate assessment of raptor breeding activity within the project site vicinity. Nonetheless, two Cooper's hawks, a juvenile and an adult, were observed on the project site, and a potential historic raptor nest was located west of the project site. As such, there is suitable habitat for breeding raptors, including the state threatened Swainson's hawk, within the vicinity of the project site. A standard protocol Swainson's hawk survey should be conducted within one half-mile of the project site if project activities are initiated during the breeding season (Swainson's Hawk Technical Advisory Committee 2000). These survey techniques are adequate to identify other raptor species that may potentially breed within the project vicinity as well. If identified, active raptor nests should be avoided by a buffer distance that is determined in consultation with appropriate agencies.

REFERENCES

Swainson's Hawk Technical Advisory Committee, May 31, 2000. *Recommended Timing and Methodology for Swanson's Hawk Nesting Surveys in California's Central Valley.*

U.S. Fish and Wildlife Service. 1999. *Conservation guidelines for the Valley Elderberry Longhorn Beetle.* Sacramento Fish and Wildlife Office.

Elderberry 1



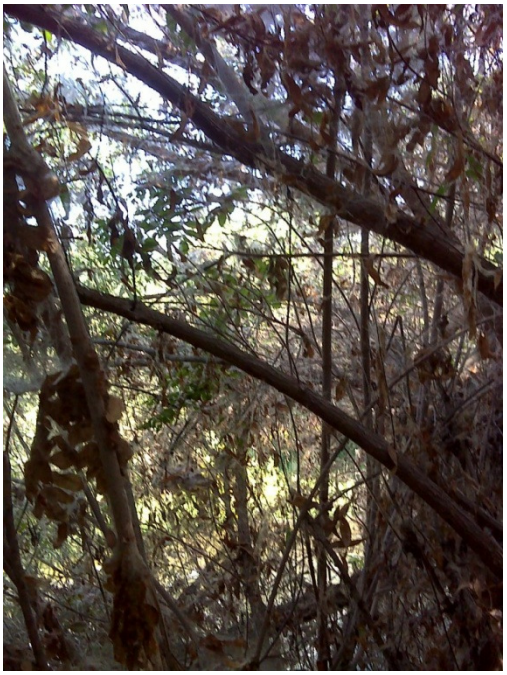
Elderberry 2

Elderberry 3

Elderberry 4

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 1

Elderberry 5



Elderberry 6

Elderberry 7

Elderberry 8

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 2

Elderberry 9

Elderberry 10

Elderberry 11

Elderberry 12

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 3

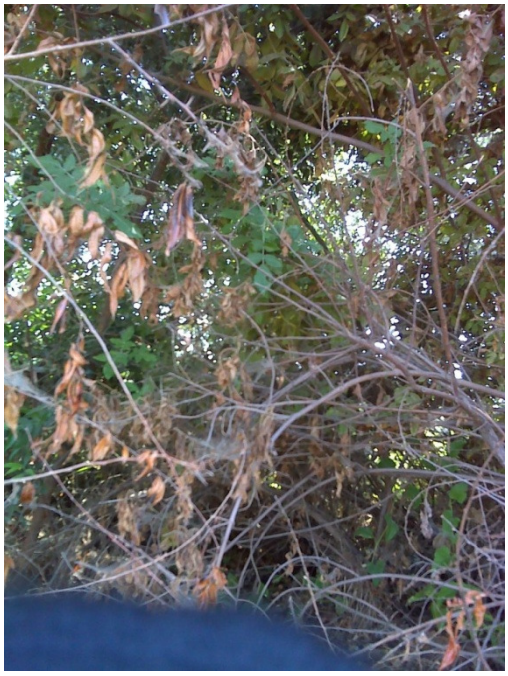
Elderberry 13

Elderberry 14

Elderberry 15

Elderberry 16

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 4



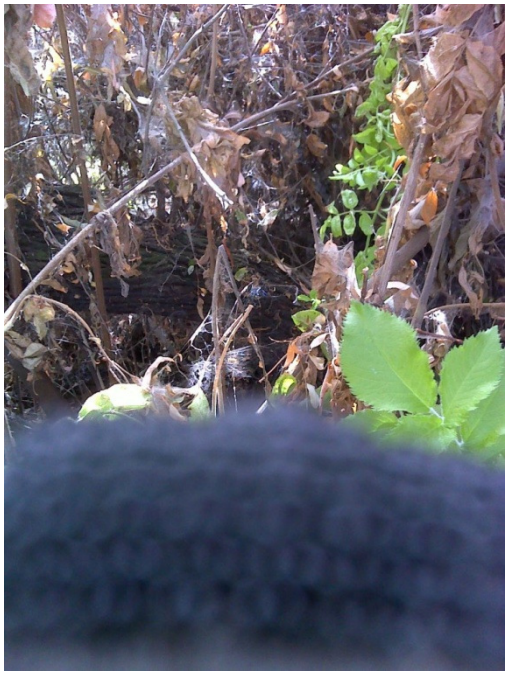
Elderberry 17

Elderberry 18

Elderberry 19

Elderberry 20

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 5



Elderberry 21

Elderberry 22

Elderberry 23

Elderberry 24

Quad Knopf	ELDERBERRY PHOTOGRAPHS	Photo Plate 6

APPENDIX A

CONSERVATION GUIDELINES FOR THE VALLEY ELDERBERRY LONGHORN BEETLE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Conservation Guidelines for the
Valley Elderberry Longhorn Beetle
9 July 1999

The following guidelines have been issued by the U.S. Fish and Wildlife Service (Service) to assist Federal agencies and non-federal project applicants needing incidental take authorization through a section 7 consultation or a section 10(a)(1)(B) permit in developing measures to avoid and minimize adverse effects on the valley elderberry longhorn beetle. The Service will revise these guidelines as needed in the future. The most recently issued version of these guidelines should be used in developing all projects and habitat restoration plans. The survey and monitoring procedures described below are designed to avoid any adverse effects to the valley elderberry longhorn beetle. Thus a recovery permit is not needed to survey for the beetle or its habitat or to monitor conservation areas. If you are interested in a recovery permit for research purposes please call the Service's Regional Office at (503) 231-2063.

Background Information

The valley elderberry longhorn beetle (Desmocerus californicus dimorphus), was listed as a threatened species on August 8, 1980 (Federal Register 45: 52803-52807). This animal is fully protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The valley elderberry longhorn beetle (beetle) is completely dependent on its host plant, elderberry (Sambucus species), which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley. Use of the elderberry by the beetle, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the elderberry's use by the beetle is an exit hole created by the larva just prior to the pupal stage. The life cycle takes one or two years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers. The adult stage is short-lived. Further information on the life history, ecology, behavior, and distribution of the beetle can be found in a report by Barr (1991) and the recovery plan for the beetle (USFWS 1984).

Surveys

Proposed project sites within the range of the valley elderberry longhorn beetle should be surveyed for the presence of the beetle and its elderberry host plant by a qualified biologist. The beetle's range extends throughout California's Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west (Figure 1). All or portions of 31 counties are included: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Madera, Mariposa, Merced, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba.

If elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level occur on or adjacent to the proposed project site, or are otherwise located where they may be directly or indirectly affected by the proposed action, minimization measures which include planting replacement habitat (conservation planting) are required (Table 1).

All elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level that occur on or adjacent to a proposed project site must be thoroughly searched for beetle exit holes (external evidence of beetle presence). In addition, all elderberry stems one inch or greater in diameter at ground level must be tallied by diameter size class (Table 1). As outlined in Table 1, the numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether a proposed project lies in a riparian or non-riparian area.

Elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. Surveys are valid for a period of two years.

Avoid and Protect Habitat Whenever Possible

Project sites that do not contain beetle habitat are preferred. If suitable habitat for the beetle occurs on the project site, or within close proximity where beetles will be affected by the project, these areas must be designated as avoidance areas and must be protected from disturbance during the construction and operation of the project. When possible, projects should be designed such that avoidance areas are connected with adjacent habitat to prevent fragmentation and isolation of beetle populations. Any beetle habitat that cannot be avoided as described below should be considered impacted and appropriate minimization measures should be proposed as described below.

Avoidance: Establishment and Maintenance of a Buffer Zone

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

Protective Measures

1. Fence and flag all areas to be avoided during construction activities. In areas where encroachment on the 100-foot buffer has been approved by the Service, provide a minimum setback of at least 20 feet from the dripline of each elderberry plant.

2. Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.

3. Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

4. Instruct work crews about the status of the beetle and the need to protect its elderberry host plant.

Restoration and Maintenance

1. Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.

2. Buffer areas must continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.

3. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

4. The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.

5. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

Transplant Elderberry Plants That Cannot Be Avoided

Elderberry plants must be transplanted if they can not be avoided by the proposed project. All elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level must be transplanted to a conservation area (see below). At the Service's discretion, a plant that is unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible the minimization ratios in Table 1 may be increased to offset the additional habitat loss.

Trimming of elderberry plants (e.g., pruning along roadways, bike paths, or trails) with one or more stems 1.0 inch or greater in diameter at ground level, may result in take of beetles. Therefore, trimming is subject to appropriate minimization measures as outlined in Table 1.

1. Monitor. A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry plants to insure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor must have the authority to stop work until corrective measures have been completed. The monitor must immediately report any unauthorized take of the beetle or its habitat to the Service and to the California Department of Fish and Game.

2. Timing. Transplant elderberry plants when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.

3. Transplanting Procedure.

    a. Cut the plant back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level should be replanted. Any leaves remaining on the plant should be removed.

b. Excavate a hole of adequate size to receive the transplant.

c. Excavate the plant using a Vemeer spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as possible, and replant immediately at the conservation area. Move the plant only by the root ball. If the plant is to be moved and transplanted off site, secure the root ball with wire and wrap it with burlap. Dampen the burlap with water, as necessary, to keep the root ball wet. Do not let the roots dry out. Care should be taken to ensure that the soil is not dislodged from around the roots of the transplant. If the site receiving the transplant does not have adequate soil moisture, pre-wet the soil a day or two before transplantation.

d. The planting area must be at least 1,800 square feet for each elderberry transplant. The root ball should be planted so that its top is level with the existing ground. Compact the soil sufficiently so that settlement does not occur. As many as five (5) additional elderberry plantings (cuttings or seedlings) and up to five (5) associated native species plantings (see below) may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting should have its own watering basin measuring at least three (3) feet in diameter. Watering basins should have a continuous berm measuring approximately eight (8) inches wide at the base and six (6) inches high.

e. Saturate the soil with water. Do not use fertilizers or other supplements or paint the tips of stems with pruning substances, as the effects of these compounds on the beetle are unknown.

f. Monitor to ascertain if additional watering is necessary. If the soil is sandy and well-drained, plants may need to be watered weekly or twice monthly. If the soil is clayey and poorly-drained, it may not be necessary to water after the initial saturation. However, most transplants require watering through the first summer. A drip watering system and timer is ideal. However, in situations where this is not possible, a water truck or other apparatus may be used.

Plant Additional Seedlings or Cuttings

Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) must be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). Minimization ratios are listed and explained in Table 1. Stock of either seedlings or cuttings should be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area. If the Service determines that the elderberry plants on the proposed project site are unsuitable candidates for

transplanting, the Service may allow the applicant to plant seedlings or cuttings at higher than the stated ratios in Table 1 for each elderberry plant that cannot be transplanted.

Plant Associated Native Species

Studies have found that the beetle is more abundant in dense native plant communities with a mature overstory and a mixed understory. Therefore, a mix of native plants associated with the elderberry plants at the project site or similar sites will be planted at ratios ranging from 1:1 to 2:1 [native tree/plant species to each elderberry seedling or cutting (see Table 1)]. These native plantings must be monitored with the same survival criteria used for the elderberry seedlings (see below). Stock of saplings, cuttings, and seedlings should be obtained from local sources. If the parent stock is obtained from a distance greater than one mile from the conservation area, approval by the Service of the native plant donor sites must be obtained prior to initiation of the revegetation work. Planting or seeding the conservation area with native herbaceous species is encouraged. Establishing native grasses and forbs may discourage unwanted non-native species from becoming established or persisting at the conservation area. Only stock from local sources should be used.

Examples

Example 1

The project will adversely affect beetle habitat on a vacant lot on the land side of a river levee. This levee now separates beetle habitat on the vacant lot from extant Great Valley Mixed Riparian Forest (Holland 1986) adjacent to the river. However, it is clear that the beetle habitat located on the vacant lot was part of a more extensive mixed riparian forest ecosystem extending farther from the river's edge prior to agricultural development and levee construction. Therefore, the beetle habitat on site is considered riparian. A total of two elderberry plants with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The two plants have a total of 15 stems measuring over 1.0 inch. No exit holes were found on either plant. Ten of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are greater than 5.0 inches in diameter. The conservation area is suited for riparian forest habitat. Associated natives adjacent to the conservation area are box elder (Acer negundo californica), walnut (Juglans californica var. hindsii), sycamore (Platanus racemosa), cottonwood (Populus fremontii), willow (Salix gooddingii and S. laevigata), white alder (Alnus rhombifolia), ash (Fraxinus latifolia), button willow (Cephalanthus occidentalis), and wild grape (Vitis californica).

Minimization (based on ratios in Table 1):

• Transplant the two elderberry plants that will be affected to the conservation area.

• Plant 40 elderberry rooted cuttings (10 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)

• Plant 40 associated native species (ratio of associated natives to elderberry plantings is 1:1 in areas with no exit holes):

5 saplings each of box elder, sycamore, and cottonwood
5 willow seedlings
5 white alder seedlings
5 saplings each of walnut and ash
3 California button willow
2 wild grape vines
Total: 40 associated native species

• Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 80 plants must be planted (40 elderberries and 40 associated natives), a total of 0.33 acre (14,400 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Example 2

The project will adversely affect beetle habitat in Blue Oak Woodland (Holland 1986). One elderberry plant with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The plant has a total of 10 stems measuring over 1.0 inch. Exit holes were found on the plant. Five of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are between 3.0 and 5.0 inches in diameter. The conservation area is suited for elderberry savanna (non-riparian habitat). Associated natives adjacent to the conservation area are willow (Salix species), blue oak (Quercus douglasii), interior live oak (Q. wislizenii), sycamore, poison oak (Toxicodendron diversilobum), and wild grape.

Minimization (based on ratios in Table 1):

• Transplant the one elderberry plant that will be affected to the conservation area.

• Plant 30 elderberry seedlings (5 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)

• Plant 60 associated native species (ratio of associated natives to elderberry plantings is 2:1 in areas with exit holes):

20 saplings of blue oak, 20 saplings of sycamore, and 20 saplings of willow, and seed and plant with a mixture of native grasses and forbs

• Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 90 plants must be planted (30 elderberries and 60 associated natives), a total of 0.37 acre (16,200 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Conservation Area—Provide Habitat for the Beetle in Perpetuity

The conservation area is distinct from the avoidance area (though the two may adjoin), and serves to receive and protect the transplanted elderberry plants and the elderberry and other native plantings. The Service may accept proposals for off-site conservation areas where appropriate.

1. Size. The conservation area must provide at least 1,800 square feet for each transplanted elderberry plant. As many as 10 conservation plantings (i.e., elderberry cuttings or seedlings and/or associated native plants) may be planted within the 1800 square foot area with each transplanted elderberry. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Each planting should have its own watering basin measuring approximately three feet in diameter. Watering basins should be constructed with a continuous berm measuring approximately eight inches wide at the base and six inches high.

   The planting density specified above is primarily for riparian forest habitats or other habitats with naturally dense cover. If the conservation area is an open habitat (i.e., elderberry savanna, oak woodland) more area may be needed for the required plantings. Contact the Service for assistance if the above planting recommendations are not appropriate for the proposed conservation area.

   No area to be maintained as a firebreak may be counted as conservation area. Like the avoidance area, the conservation area should connect with adjacent habitat wherever possible, to prevent isolation of beetle populations.

   Depending on adjacent land use, a buffer area may also be needed between the conservation area and the adjacent lands. For example, herbicides and pesticides are

often used on orchards or vineyards. These chemicals may drift or runoff onto the conservation area if an adequate buffer area is not provided.

2. Long-Term Protection. The conservation area must be protected in perpetuity as habitat for the valley elderberry longhorn beetle. A conservation easement or deed restrictions to protect the conservation area must be arranged. Conservation areas may be transferred to a resource agency or appropriate private organization for long-term management. The Service must be provided with a map and written details identifying the conservation area; and the applicant must receive approval from the Service that the conservation area is acceptable prior to initiating the conservation program. A true, recorded copy of the deed transfer, conservation easement, or deed restrictions protecting the conservation area in perpetuity must be provided to the Service before project implementation.

   Adequate funds must be provided to ensure that the conservation area is managed in perpetuity. The applicant must dedicate an endowment fund for this purpose, and designate the party or entity that will be responsible for long-term management of the conservation area. The Service must be provided with written documentation that funding and management of the conservation area (items 3-8 above) will be provided in perpetuity.

3. Weed Control. Weeds and other plants that are not native to the conservation area must be removed at least once a year, or at the discretion of the Service and the California Department of Fish and Game. Mechanical means should be used; herbicides are prohibited unless approved by the Service.

4. Pesticide and Toxicant Control. Measures must be taken to insure that no pesticides, herbicides, fertilizers, or other chemical agents enter the conservation area. No spraying of these agents must be done within one 100 feet of the area, or if they have the potential to drift, flow, or be washed into the area in the opinion of biologists or law enforcement personnel from the Service or the California Department of Fish and Game.

5. Litter Control. No dumping of trash or other material may occur within the conservation area. Any trash or other foreign material found deposited within the conservation area must be removed within 10 working days of discovery.

6. Fencing. Permanent fencing must be placed completely around the conservation area to prevent unauthorized entry by off-road vehicles, equestrians, and other parties that might damage or destroy the habitat of the beetle, unless approved by the Service. The applicant must receive written approval from the Service that the fencing is acceptable prior to initiation of the conservation program. The fence must be maintained in perpetuity, and must be repaired/replaced within 10 working days if it is found to be damaged. Some conservation areas may be made available to the public for appropriate recreational and educational opportunities with written approval from the Service. In

these cases appropriate fencing and signs informing the public of the beetle's threatened status and its natural history and ecology should be used and maintained in perpetuity.

7. Signs. A minimum of two prominent signs must be placed and maintained in perpetuity at the conservation area, unless otherwise approved by the Service. The signs should note that the site is habitat of the federally threatened valley elderberry longhorn beetle and, if appropriate, include information on the beetle's natural history and ecology. The signs must be approved by the Service. The signs must be repaired or replaced within 10 working days if they are found to be damaged or destroyed.

Monitoring

The population of valley elderberry longhorn beetles, the general condition of the conservation area, and the condition of the elderberry and associated native plantings in the conservation area must be monitored over a period of either ten (10) consecutive years or for seven (7) years over a 15-year period. The applicant may elect either 10 years of monitoring, with surveys and reports every year; or 15 years of monitoring, with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. The conservation plan provided by the applicant must state which monitoring schedule will be followed. No change in monitoring schedule will be accepted after the project is initiated. If conservation planting is done in stages (i.e., not all planting is implemented in the same time period), each stage of conservation planting will have a different start date for the required monitoring time.

Surveys. In any survey year, a minimum of two site visits between February 14 and June 30 of each year must be made by a qualified biologist. Surveys must include:

1. A population census of the adult beetles, including the number of beetles observed, their condition, behavior, and their precise locations. Visual counts must be used; mark-recapture or other methods involving handling or harassment must not be used.

2. A census of beetle exit holes in elderberry stems, noting their precise locations and estimated ages.

3. An evaluation of the elderberry plants and associated native plants on the site, and on the conservation area, if disjunct, including the number of plants, their size and condition.

4. An evaluation of the adequacy of the fencing, signs, and weed control efforts in the avoidance and conservation areas.

5. A general assessment of the habitat, including any real or potential threats to the beetle and its host plants, such as erosion, fire, excessive grazing, off-road vehicle use, vandalism, excessive weed growth, etc.

The materials and methods to be used in the monitoring studies must be reviewed and approved by the Service. All appropriate Federal permits must be obtained prior to initiating the field studies.

Reports. A written report, presenting and analyzing the data from the project monitoring, must be prepared by a qualified biologist in each of the years in which a monitoring survey is required. Copies of the report must be submitted by December 31 of the same year to the Service (Chief of Endangered Species, Sacramento Fish and Wildlife Office), and the Department of Fish and Game (Supervisor, Environmental Services, Department of Fish and Game, 1416 Ninth Street, Sacramento, California 95814; and Staff Zoologist, California Natural Diversity Data Base, Department of Fish and Game, 1220 S Street, Sacramento, California 95814). The report must explicitly address the status and progress of the transplanted and planted elderberry and associated native plants and trees, as well as any failings of the conservation plan and the steps taken to correct them. Any observations of beetles or fresh exit holes must be noted. Copies of original field notes, raw data, and photographs of the conservation area must be included with the report. A vicinity map of the site and maps showing where the individual adult beetles and exit holes were observed must be included. For the elderberry and associated native plants, the survival rate, condition, and size of the plants must be analyzed. Real and likely future threats must be addressed along with suggested remedies and preventative measures (e.g. limiting public access, more frequent removal of invasive non-native vegetation, etc.).

A copy of each monitoring report, along with the original field notes, photographs, correspondence, and all other pertinent material, should be deposited at the California Academy of Sciences (Librarian, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118) by December 31 of the year that monitoring is done and the report is prepared. The Service's Sacramento Fish and Wildlife Office should be provided with a copy of the receipt from the Academy library acknowledging receipt of the material, or the library catalog number assigned to it.

Access. Biologists and law enforcement personnel from the California Department of Fish and Game and the Service must be given complete access to the project site to monitor transplanting activities. Personnel from both these agencies must be given complete access to the project and the conservation area to monitor the beetle and its habitat in perpetuity.

Success Criteria

A minimum survival rate of at least 60 percent of the elderberry plants and 60 percent of the associated native plants must be maintained throughout the monitoring period. Within one year of discovery that survival has dropped below 60 percent, the applicant must replace failed plantings to bring survival above this level. The Service will make any determination as to the

applicant's replacement responsibilities arising from circumstances beyond its control, such as plants damaged or killed as a result of severe flooding or vandalism.

Service Contact

These guidelines were prepared by the Endangered Species Division of the Service's Sacramento Fish and Wildlife Office. If you have questions regarding these guidelines or to request a copy of the most recent guidelines, telephone (916) 414-6600, or write to:

U.S. Fish and Wildlife Service
Ecological Services
2800 Cottage Way, W-2605
Sacramento, CA 95825

Figure 1: Range of the Valley Elderberry Longhorn Beetle

Literature Cited

Barr, C. B. 1991. The distribution, habitat, and status of the valley elderberry longhorn beetle Desmocerus californicus dimorphus. U.S. Fish and Wildlife Service; Sacramento, California.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Unpublished Report. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, California.

USFWS. 1980. Listing the valley elderberry longhorn beetle as a threatened species with critical habitat. Federal Register 45:52803-52807.

USFWS. 1984. Recovery plan for the valley elderberry longhorn beetle. U.S. Fish and Wildlife Service, Endangered Species Program; Portland, Oregon.

Table 1: Minimization ratios based on location (riparian vs. non-riparian), stem diameter of affected elderberry plants at ground level, and presence or absence of exit holes.

Location	Stems (maximum diameter at ground level)	Exit Holes on Shrub Y/N (quantify)[1]	Elderberry Seedling Ratio[2]	Associated Native Plant Ratio[3]
non-riparian	stems > = 1" & = < 3"	No:	1:1	1:1
		Yes:	2:1	2:1
non-riparian	stems > 3" & < 5"	No:	2:1	1:1
		Yes:	4:1	2:1
non-riparian	stems >= 5"	No:	3:1	1:1
		Yes:	6:1	2:1
riparian	stems > = 1" & = < 3"	No:	2:1	1:1
		Yes:	4:1	2:1
riparian	stems > 3" & < 5"	No:	3:1	1:1
		Yes:	6:1	2:1
riparian	stems > = 5"	No:	4:1	1:1
		Yes:	8:1	2:1

[1] All stems measuring one inch or greater in diameter at ground level on a single shrub are considered occupied when exit holes are present anywhere on the shrub.

[2] Ratios in the *Elderberry Seedling Ratio* column correspond to the number of cuttings or seedlings to be planted per elderberry stem (one inch or greater in diameter at ground level) affected by a project.

[3] Ratios in the *Associated Native Plant Ratio* column correspond to the number of associated native species to be planted per elderberry (seedling or cutting) planted.

Appendix D

Cultural Resources Report

A CULTURAL RESOURCES SURVEY OF THE JAYE STREET BRIDGE (46 C0099) REHABILITATION PROJECT, PORTERVILLE, TULARE COUNTY, CALIFORNIA

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California Department of Transportation, District 6
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30 September 2011

Topographic Quadrangle: Porterville, 7.5' (1989)
Area: ~3.7 acres (~1.5 hectares)

(Keywords: *Tulare, Township 21S, Range 27E, Bridge 46 C0099, Tule River, Poplar Ditch, Koyete Yokuts, Porterville)*

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MANAGEMENT SUMMARY

On 1 March 2011, a cultural resources survey was performed of approximately 3.7 acres (1.5 hectares) of land centered along Jaye Street where it crosses the Tule River in the City of Porterville, Tulare County, California (Map 1). The Project Area surveyed (the Area of Potential Effects [APE]) includes a bridge (46 C0099) crossing the Tule River plus roadway on both approaches to the bridge (along Jaye Street from East Date Avenue on the north to Springville Avenue on the south). Also included in the survey are three temporary construction staging areas for use during project construction (see Map 2). The study area is located in the southeastern portion of the City of Porterville along Jaye Street between East Date and Springville avenues (Township 21S, Range 27E, Section 35, MDB&M; see Maps 1 and 2).

The City of Porterville proposes to rehabilitate the existing bridge by widening it from 2 lanes to 4 lanes over the Tule River and reconstructing the street approaches. The bridge will include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches will also be widened from 2 lanes to 4 lanes to tie into the existing 4 lane sections of Jaye Street north of the bridge (at Date Avenue) and south of the bridge.

Quad Knopf is assisting the City of Porterville with the preparation of environmental documents necessary under the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA). Provisions and implementing guidelines of the CEQA, as amended March 18, 2010, state that identification and evaluation of historical resources is required for any action that may result in a potential adverse effect on the significance of such resources, which include archaeological resources. Identification of historic properties is also required pursuant to provisions and implementing regulations of Section 106 of the National Historic Preservation Act.

Bridge 46 C0099 has been determined ineligible for listing on the National Register of Historic Places (Caltrans 2009). No other historical resources or properties were identified as a result of surface inspection of the APE, and there appears to be little likelihood of buried cultural resources within the APE; thus, it is unlikely that rehabilitation of the existing bridge and associated roadwork will have an effect on important archaeological, historical, or other cultural resources. No further cultural resources investigation is therefore recommended. In the unlikely event that buried archaeological deposits are encountered within the Project APE, the finds must be evaluated by a qualified archaeologist. Should human remains be encountered, the County Coroner must be contacted immediately; if the remains are determined to be Native American, then the Native American Heritage Commission must be contacted as well.

1.0 INTRODUCTION

This report presents the findings of a cultural resource survey of approximately 3.7 acres (1.5 hectares) of land centered along Jaye Street where it crosses the Tule River in the City of Porterville, Tulare County, California. The Project Area surveyed (the Area of Potential Effects [APE]) includes a bridge (46 C0099) crossing the Tule River, plus roadway on both approaches to the bridge (along Jaye Street from East Date Avenue on the north to Springville Avenue on the south). Also included in the survey are three temporary construction staging areas for use during project construction, two of which are located south of the Tule River on either side of Jaye Street, and a third location north of the Tule River adjacent Jaye Street on the east. The study area is located in the southeastern portion of the City of Porterville (Township 21S, Range 27E, Section 35, MDB&M; see Maps 1 and 2).

The existing Jaye Street Bridge was built in 1970, has two traffic lanes and is an eight-span reinforced concrete slab type bridge 241'-6" in length. The piers consist of five 1'-6" diameter concrete pile extensions attached by a concrete collar to steel H-piles with 70 ton service design load. The abutments are diaphragm type supported on steel H-piles with 70 ton service design load. The existing 2-lane bridge has been deemed structurally deficient by the Caltrans Area Bridge Maintenance Engineer and is not adequate to handle existing and projected traffic volumes on Jaye Street. The City of Porterville proposes to rehabilitate the existing bridge by widening it from 2 lanes to 4 lanes over the Tule River and reconstructing the street approaches. The bridge will include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches will also be widened from 2 lanes to 4 lanes to tie into the existing 4 lane sections of Jaye Street north of the bridge (at Date Avenue) and south of the bridge.

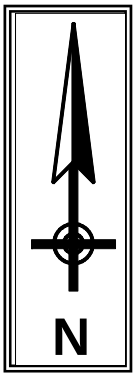
The APE also includes three potential construction staging areas. These include a combination of existing bridge approach shoulders, fallow areas adjacent to the roadway to the north, and adjacent to the Tule River Parkway driveway (southwest), and/or other areas that can be secured to store equipment and materials. Any temporary staging area would be reclaimed to conditions equivalent to existing conditions after project construction has been completed.

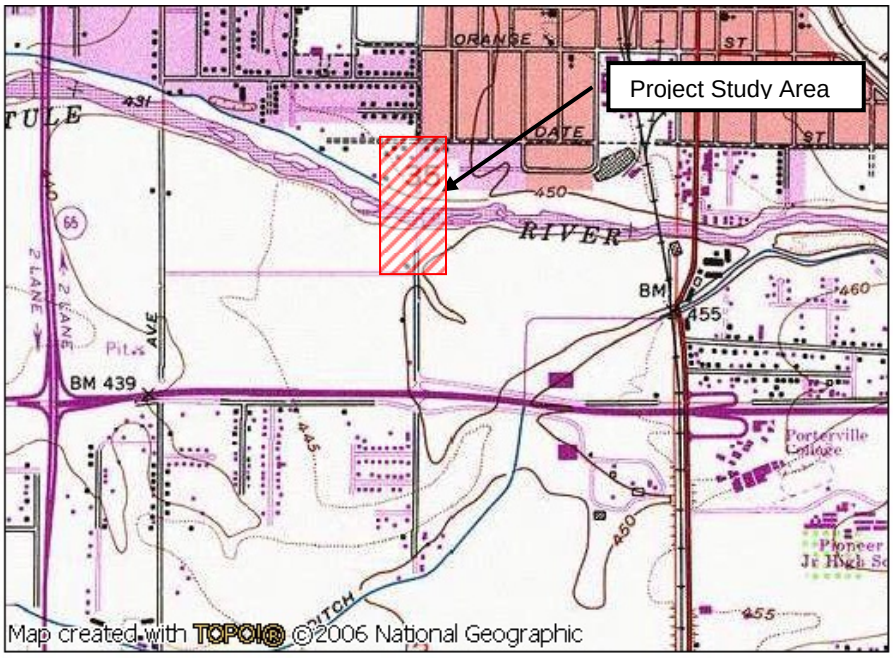
Quad Knopf is assisting the City of Porterville with the preparation of environmental documents necessary under the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA). Provisions and implementing guidelines of the CEQA, as amended March 18, 2010, state that identification and evaluation of historical resources is required for any action that may result in a potential adverse effect on the significance of such resources, which include archaeological resources. Identification of historic properties is also required pursuant to provisions and implementing regulations of Section 106 of the National Historic Preservation Act.

The author conducted a cultural resources survey of the Project APE on 11 July 2011. A brief description of the natural and cultural setting of the Project APE follows this introduction. Survey methods and findings are presented in the subsequent section.

MAP 1. PROJECT VICINITY

Bridge 46 C0099, Jaye Street Bridge Rehabilitation, Tule River





USGS Porterville (1969), Calif., 7.5', T21S / R 27E, Section 35.

0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

TN MN
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09/30/11

Map 2. Project Location / Area of Potential Effects (APE).

2.0 SETTING

The Project Study Area is located in the southeastern portion of the City of Porterville, in central Tulare County, California. Twentieth century modifications within and immediately surrounding the study area include Jaye Street, Bridge 46 C0099, East Date Avenue, Springville Avenue, West Parkway Drive, utility lines, street lights, non-native ornamental trees, and driveways/parking areas immediately off Jaye Street. A public parkway path currently exists which crosses under the existing bridge. Numerous commercial facilities and single and multi-family residences are located within a ¼-mile radius of the Project APE. Figures 1 through 6 provide a pictorial overview of the Project APE.

2.1 Natural Environment

The project study area is located in the Tule River drainage in the lower elevations of the western south-central Sierra Nevada foothills of eastern Tulare County, at an elevation ranging from 440-450 ft (134-137 m) above mean sea level. The Tule River flows west from the City, and is ultimately channelized, feeding into numerous canals and ditches that provide irrigation water to agricultural parcels within the former Tulare lakebed. Soils within the study area include well-drained sandy loam. Current land use is light commercial with scattered single-family residences; a multi-family residential development is located west of Jaye Street between West Parkway Drive and Springville Avenue. Vegetation within the stream channel includes thick stands of rushes, willows, blackberry thickets, white alder, and various riparian plants. Open fields to the north of the Tule River include dense non-native grasses and forbs.

Prior to EuroAmerican exploration and settlement in the region, the central San Joaquin Valley was extensive grassland covered with spring-flowering herbs. Stands of trees -- sycamore, cottonwoods, box elders and willows -- lined the stream and river courses with groves of valley oaks in well-watered localities with rich soil. Rivers yielded fish, mussels, and pond turtles; migratory waterfowl nested in the dense tules along the river sloughs downstream. Tule elk, sometimes referred to by early Spanish explorers as wild horses, found ample forage. Smaller mammals and birds, including jackrabbits, ground squirrels, and quail were abundant. Native Americans occupants of the region describe abundant sedge beds, along with rich areas of deer grass, plants that figure prominently in the construction of Native American basketry items.

2.2 Prehistoric Period Summary

The San Joaquin Valley and adjacent Sierran foothills and Coast Range have a long and complex cultural history with distinct regional patterns that extend back more than 11,000 years (McGuire 1995). The first generally agreed-upon evidence for the presence of prehistoric peoples in the region is represented by the distinctive basally-thinned and fluted projectile points, found on the margins of extinct lakes in the San Joaquin Valley. These projectiles, often compared to Clovis points, have been found at three localities in the San Joaquin Valley including along the Pleistocene shorelines of former Tulare Lake. Based on evidence from these sites and other well-dated contexts elsewhere, these Paleo-Indian hunters who used these spear points existed during a narrow time range of 11,550 BP to 8,550 BP (Rosenthal et al. 2007).

As a result of climate change at the end of the Pleistocene, a period of extensive deposition occurred throughout the lowlands of central California, burying many older landforms and providing a distinct break between Pleistocene and subsequent occupations during the Holocene. Another period of deposition, also a product of climate change, had similar results around 7,550 BP, burying some of the oldest archaeological deposits discovered in California (Rosenthal and Meyer 2004).

Figure 1. View north along east side of Jaye Street Bridge 46 C0099.

Figure 2. View west along Tule River from Jaye Street, Bridge 46 C0099.

Figure 3. View east along Tule River from Jaye Street Bridge 46 C0099.

Figure 4. View east along Parkway which parallels Tule River south on the south.

Figure 5. View south along western edge of Jaye Street Bridge 46 C0099 toward multi-family housing and Springville Avenue.

Figure 6. View of former Sears parking area located southeast of Jaye Street Bridge 46 C0099 which may serve as one of three construction staging areas.

The Lower Archaic (8,550-5,550 BP) is characterized by an apparent contrast in economies, although it is possibly they may be seasonal expressions of the same economy. Archaeological deposits which date to this period on the valley floor frequently include only large stemmed spear points, suggesting an emphasis on large game such as artiodactyls (Wallace 1991). Recent discoveries in the adjacent Sierra Nevada have yielded distinct milling assemblages which clearly indicate a reliance on plant foods. Investigations at Copperopolis (LaJeunesse and Pryor 1996) argue that nut crops were the primary target of seasonal plant exploitation. Assemblages at these foothill sites include dense accumulations of handstones, millingslabs, and various cobble-core tools, representing "frequently visited camps in a seasonally structured settlement system (Rosenthal et al. 2007:152). As previously stated, these may represent different elements of the seasonal round. Future investigations should address this question. What is known is that during the Lower Archaic, regional interaction spheres had been well established. Marine shell from the central California coast has been found in early Holocene contexts in the great basin east of the Sierra Nevada, and eastern Sierra obsidian comprises a large percentage of flaked stone debitage and tools recovered from sites on both sides of the Sierra.

About 8,000 years ago, many California cultures shifted the main focus of their subsistence strategies from hunting to nut and seed gathering, as evidenced by the increase in food-grinding implements found in archeological sites dating to this period. This cultural pattern is best known for southern California, where it has been termed the Milling Stone Horizon (Wallace 1954, 1978a), but recent studies suggest that the horizon may be more widespread than originally described and is found throughout the region during the Middle Archaic Period. Radiocarbon dates associated with this period vary between 8,000 and 2,000 BP, although most cluster in the 6,000 to 4,000 BP range (Basgall and True 1985).

On the valley floor, early Middle Archaic sites are relatively rare. This changes significantly toward the end of the Middle Archaic. In central California late Middle Archaic settlement focused on river courses on the valley floor. "Extended residential settlement at these sites is indicated by refined and specialized tool assemblages and features, a wide range of nonutilitarian artifacts, abundant trade objects, and plant and animal remains indicative of year-round occupation" (Rosenthal et al. 2007:154). Again, climate change apparently influence this shift, with warmer, drier conditions prevailing throughout California. The shorelines of many lakes, including Tulare Lake, contracted substantially, while at the same time rising sea levels favored the expansion of the San Joaquin/Sacramento Delta region, with newly formed wetlands extending eastward from the San Francisco Bay.

In contrast, early Middle Archaic sites are relatively common in the Sierran foothills, and their recovered, mainly utilitarian assemblages recovered show relatively little change from the preceding period with a continued emphasis on acorns and pine nuts. Few bone or shell artifacts, beads, or ornaments have been recovered from these localities. Projectile points from this period reflect a high degree of regional morphological variability, with an emphasis on local toolstone material supplemented with a small amount of obsidian from eastern sources. In contrast with the more elaborate mortuary assemblages and extended burial mode documented at Valley sites, burials sites documented at some foothill sites such as CA-FRE-61 on Wahtoke Creek are reminiscent of "re-burial" features reported from Milling Stone Horizon sites in southern California. These re-burials are characterized by re-interment of incomplete skeletons often capped with inverted millingstones (McGuire 1995:57).

A return to colder and wetter conditions marked the Upper Archaic in Central California (2,500-1,000 BP). Previously desiccated lakes returned to spill levels and increased freshwater flowed in the San Joaquin and Sacramento watershed. Cultural patterns as reflected in the

archeological record, particularly specialized subsistence practices, emerged during this period. The archeological record becomes more complex, as specialized adaptations to locally available resources were developed and valley populations expanded into the lower Sierran foothills. New and specialized technologies expanded distinct shell bead types occur across the region. The range of subsistence resources utilized and exchange systems expanded significantly from the previous period. In the Central Valley, archaeological evidence of social stratification and craft specialization is indicated by well-made artifacts such as charmstones and beads, often found as mortuary items.

The period between approximately 1,000 BP and Euro-American contact is referred to as the Emergent Period. The Emergent Period is marked by the introduction of bow and arrow technology which replaced the dart and atlatl at about 1,100 to 800 BP. In the San Joaquin region, villages and small residential sites developed along the many stream courses in the lower foothills and along the river channels and sloughs of the valley floor. A local form of pottery was developed in the southern Sierran foothills along the Kaweah River. While many sites with rich archaeological assemblages have been documented in the northern Central Valley, relatively few sites have been documented from this period in the southern Sierran foothills and adjacent valley floor, despite the fact that the ethnographic record suggests dense populations for this region.

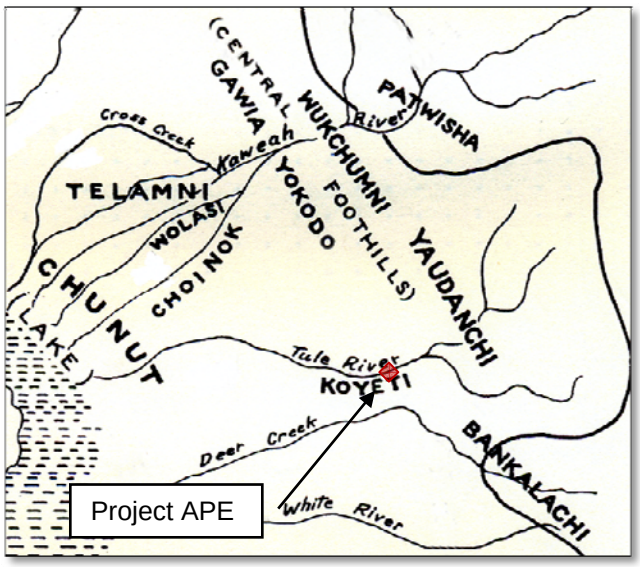

Figure 7. Southern Valley Yokuts Tribelet Locations (from Latta 1999).

2.3 Ethnographic Summary

Prior to EuroAmerican settlement, speakers of Yokutsan languages occupied most of the San Joaquin Valley and the bordering foothills of the Sierra Nevada and Diablo Range. Most of the Valley Yokuts lived on the eastern side of the San Joaquin River. The Project Study Area falls within *Koyeti* Yokut territory. The *Koyeti* had villages on the south and east side of Porterville Rocky Hill in the Alta Vista area (Kroeber 1925:482). Their chief village, *Chokowesho*, was on the north bank of the Tule River. The Koyeti probably did not range further upstream than Chico Flats, a short distance west of Bartlett Park today (Latta 1999:22).

Due to the abundance and diversity of wildlife habitats and plant communities within the Sierran foothills and nearby San Joaquin Valley and higher elevations of the Sierra Nevada, Native American population densities in the region were quite high (Baumhoff 1963). While the acorn was the dietary staple, the diversity of accessible natural resources provided an omnivorous diet. The reader is referred to Gayton (1948), Kroeber (1925), Latta (1999), and Wallace 1978b for additional information on pre-contact Yokuts subsistence and culture. Figure 7 depicts the territory of the *Koyeti* Yokut relative to the Project APE.

2.4 Historic Period Summary

The San Joaquin Valley was visited in the early 1800s by Spanish expeditions exploring the interior in search of potential mission sites. The Moraga (1806) expedition may have passed through *Koyeti* territory (Cook 1960; Smith 1939). In 1832-33 Colonel Jose J. Warner, a member of the Ewing-Young trapping expedition, passed through the San Joaquin Valley. Warner described Native villages densely packed along the valley waterways, from the foothills down into the slough area. The next year he revisited the area following a devastating malaria epidemic. Whereas the previous year the region had been densely occupied by Native peoples, during this trip not more than five Indians were observed between the head of the Sacramento Valley and the Kings River (Cook 1955).

EuroAmerican appreciation for the land did not include acceptance of its indigenous human populations, and pressure was exerted upon the US military to remove the Native population from the region, leaving the region open for American settlement and resource development. EuroAmerican settlement of the region began in 1851 with the establishment of Fort Miller on the San Joaquin River. Hostilities between Native inhabitants and American settlers initially prevented widespread settlement of the region; however, by 1860 such threats had been reduced and settlers began taking up large tracts in the region.

Due to the marshy conditions of the Tulare Lake basin, wagon roads on the east side of the San Joaquin Valley were located along the east side of the valley adjacent to the lower Sierran foothills. Following the discovery of gold in California in 1848, most gold seekers went to the central and northern Sierran foothills; however, a number of miners sought fortune in the southern Sierran foothills. A store was set up in the area that was to become Porterville in 1856 to sell goods to miners and the Indians who lived in tribal lands along the rivers. By the late 1850s, a number of settlers had made permanent locations in the area, and in 1859 the Overland Mail Route between St. Louis and San Francisco was established with a stage stop located in what is now Porterville. Royal Porter Putnam came to the village in 1860 to raise cattle, horses and hogs. He bought 40 acres of land and built a two-story store and a hotel on the highest point of the swampy property, which is now the corner of Oak and Main. The town took its name from the founder's given name because another Putnam family lived south of town (Menefee and Dodge 1912: 75).

In 1862, 20.8 inches of rain fell in the area causing the change of course of the Tule River. Putnam's acres drained and he had his property surveyed, staking out lot lines and establishing streets. Settlers were offered a free lot for every one purchased. Needs of a burgeoning California population for food gave the impetus which led to permanent development of the east side southern San Joaquin Valley. The long, dry, hot summer prompted irrigation of the lands.

In 1888, the Southern Pacific Railway brought in the branch line from Fresno. The Pioneer Hotel and Bank were built by businessmen from San Francisco. The town incorporated in 1902, as miners moved into the area to extract magnetite ore, and the Chamber of Commerce was formed in 1907. A City Manager-Council form of government was adopted in 1926, and a Charter was adopted. The City has grown from a community of 5,000 persons in 1920. Agriculture supplemented by the Central Valley Water Project has been the major source of economic growth in the area. The City is the center of a large farming area noted especially for citrus and livestock (City of Porterville 2011).

Figure 8 provides a map of land ownership and development in the general project area vicinity. The Project APE falls within lands owned by M. Hockett and D.W. Parkhurst (parceled as the South Villa Addition to the City of Porterville) north of the Tule River and east of Jaye

Street, the Estate of Charles A. Rose on the south east of Jaye Street, and Ogden Bolton west of Jaye Street. Other than a bridge crossing the Tule River, no structures are depicted within or adjacent to the Project APE.

2.5 Record Search Results

Prior to field inspection, a records search was conducted by the author at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System to identify areas previously surveyed and identify known cultural resources present within or in close proximity to the Project APE (Attachment 1). According to the Information Center records, there have been two surveys completed within the Project APE (Corey 2003, Parr 1997) with six additional surveys completed within ¼ mile radius of the Project APE. The recorded Porterville Historic District which includes numerous structures that appear to be eligible for the National Register of Historic Places is situated about ½ mile north/northeast of the Project APE on the north. No cultural resource sites listed on the National Register of Historic Places, the California Register of Historic Resources, California Points of Historical Interest, State Historic Landmarks, or the California Inventory of Historic Resources have been documented within ¼-mile radius of the Project APE.

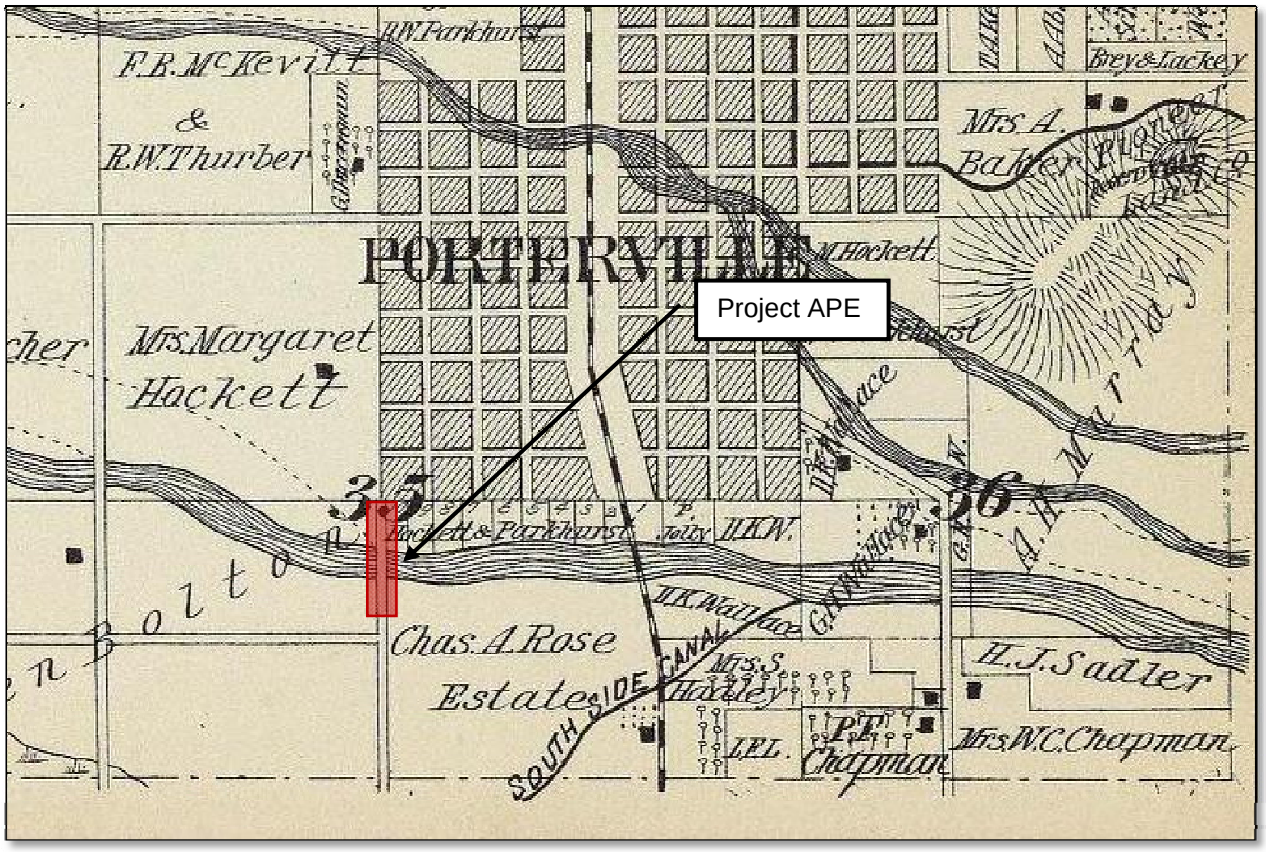

Figure 8. 1892 Map depicting parcel ownership and development within the Project APE (Thompson 1892).

2.6 Native American Consultation

The Native American Heritage Commission (NAHC) was contacted in order to determine whether Native American sacred sites have been identified either within or in close proximity to

the project area). A letter was received from the NAHC dated 11 March 2011 which indicated that while no Native American cultural resources were located within one-half mile of the proposed project APE, there are several Native American cultural resources in close proximity to the APE. Letters describing the proposed bridge replacement project and the findings of this report were sent to the seven individuals identified as local area contacts. To date no response has been received from any of these individuals.

3.0 METHODS AND FINDING

On 11 July 2011 the author conducted a cultural resources survey of portions of the Project APE. The Project APE comprises the existing bridge and roadway from East Date Avenue on the north to a point approximately 100 ft north of Springville Avenue on the south, as well as the locations of three proposed temporary construction staging areas, two of which are located south of the Tule River on either side of Jaye Street, and a third location north of the Tule River adjacent Jaye Street on the east. The APE encompasses portions of the Tule River bottom, the steep adjacent river banks, and a public parkway which crosses under the bridge,. The Tule River bottom was choked with high, dense vegetation, with the result that ground visibility over much of the accessible river bottom and adjacent banks was poor. Only those areas at the edges of the river terrace and along the public parkway were accessible and afforded fair to good surface visibility. Dense grasses obscured much of the surface visibility in the open fields north of the Tule River along both sides of Jaye Street. Vegetation in this area was periodically cleared with a hand trowel to view surface soils. Rodent backdirt piles were also inspected for evidence of cultural remains.

No cultural resources over 50 years of age were noted within the Project APE. Bridge 46 C0099, constructed in 1970, consists of a single span bridge carrying two lanes of traffic over the Tule River. The bridge is in the same location as an older structure which it replaced in 1970. The bridge is oriented on a N/S axis.

No historical resources or properties (i.e., cultural resources eligible for inclusion on the NRHP or the California Register) were identified as a result of surface inspection of the APE. Although the river bottom was not inspected due to dense vegetation and accessibility limitations, the probability of finding intact cultural deposits in this area is quite low due to historic flooding, deposition, and rechannelization. Thus it is unlikely that rehabilitation of Bridge 46 C0099 will have an effect on important archaeological, historical, or other cultural resources. No further cultural resources investigation is therefore recommended. In the unlikely event that buried archaeological deposits are encountered within the Project APE, the finds must be evaluated by a qualified archaeologist. Should human remains be encountered, the County Coroner must be contacted immediately; if the remains are determined to be Native American, then the Native American Heritage Commission must be contacted as well.

REFERENCES CITED

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PREPARER'S QUALIFICATIONS

C. Kristina Roper conducted the historical resources inventory and background research, and assisted in the preparation of this Historic Resource Evaluation Report. Ms. Roper has over 30 years of professional experience in the field of archaeology, historical research and architectural evaluation, specifically in the investigation and management of cultural resources within the context of local, state and federal regulatory compliance for projects in the Far West. Ms. Roper holds a Master's degree in Cultural Resources Management awarded in 1993 from Sonoma State University, and is certified as a Registered Professional Archaeologist. She has completed graduate-level coursework in historical architectural evaluation and historic research. Her experience in cultural resources management includes both government and private sector employment and contracting for archaeological field services and historic research, documentation of resource assessments for Initial Studies (IS), Environmental Assessments (EA), Environmental Impact Reports (EIR), and Environmental Impact Statements (EIS). Ms. Roper is a registered archaeologist with the California Historic Resources Information System.

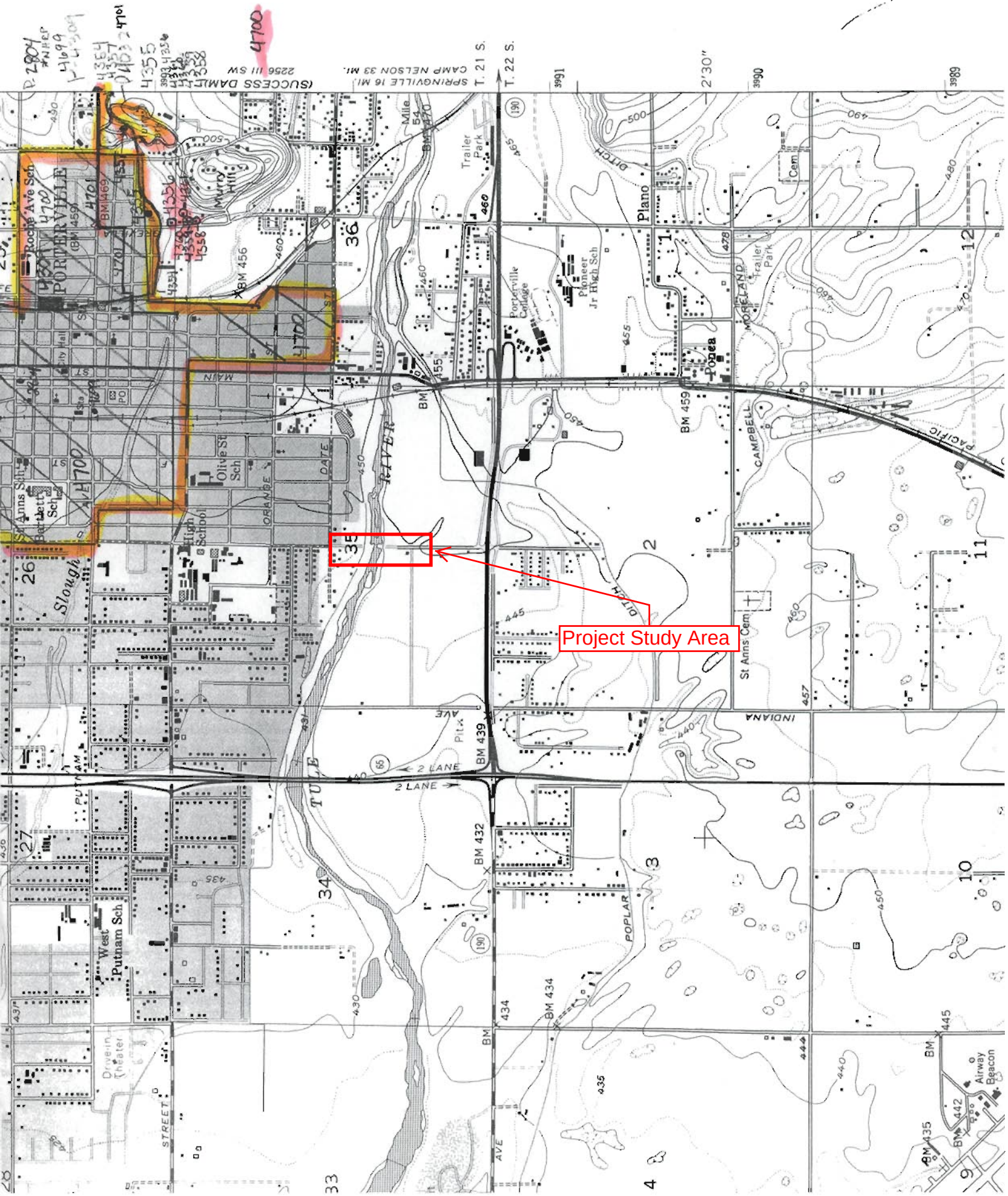
Ms. Roper has participated in planning efforts with numerous governmental entities in the San Joaquin Valley. She has prepared heritage preservation ordinances for the City of Chowchilla, serves as advisory staff to the Chowchilla Heritage Preservation Commission, and has recently completed a multi-year survey and assessment of Chowchilla's built environment. Ms. Roper has prepared a cultural resources records search and sensitivity analysis to be used in the development of a revised General Plan for the City of Coalinga, Fresno County. Ms. Roper has consulted with Native American tribes in the San Joaquin Valley and Sierra foothills under Senate Bill 18 (SB 18), which applies to General Plans, Specific Plans, and amendments proposed on or after March 1, 2005. SB 18 expands CEQA for the protection of California's traditional tribal cultural places by requiring consultation with Native American Groups during these planning efforts to define resources and sacred areas and incorporate protection of these important resources into the planning process.

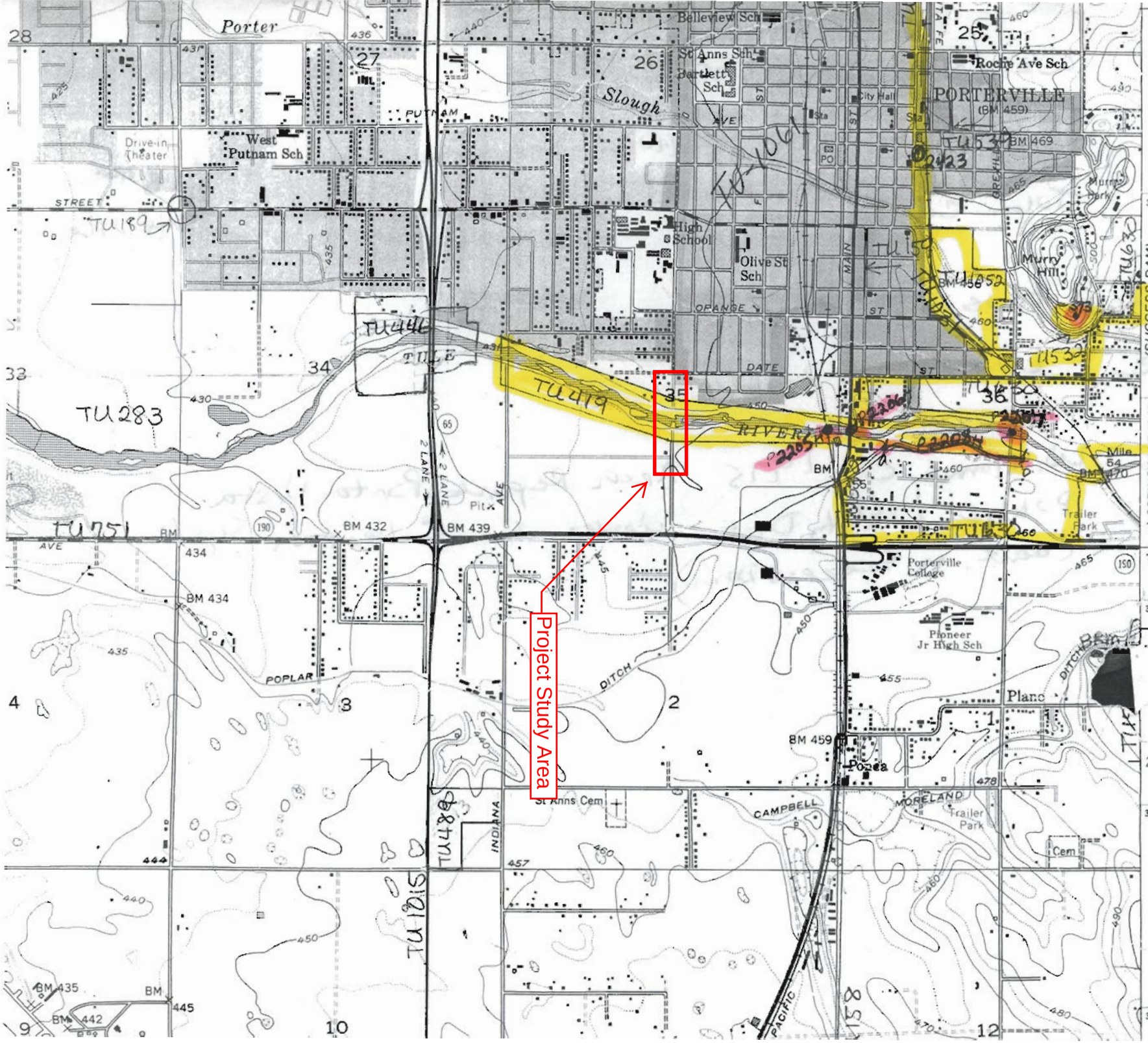
Ms. Roper has served as a Lecturer in Anthropology at California State University Fresno from 1995 to the present. Among her many courses taught is an upper division course in Cultural Resources Management which provides an overview of state and federal historic preservation law and the identification and evaluation of cultural resources. From 2002 through June of 2009, Ms. Roper served as Project Director for a services contract with the California Department of Transportation, District 6, Cultural Resources Branch, administered by the California State University Foundation. Ms. Roper supervised a team of cultural resources technicians who performed professional and technical services required by Caltrans for cultural resource studies. These included archaeological survey, title search for historic structures and properties, prehistoric and historic background research, excavation of archaeological sites, electronic data entry, and maintenance of confidential archaeological records and files.

Attachment 1: Records Search

Cultural Resources Records Search,
Southern San Joaquin Valley Information Center
of the California Historical Resources
Information System

Porterville 1951 (PR 1969)




Project Study Area
Porterville
Slough
Belleview Sch
St Anns Sch
Bartlett Sch
Rocky Ave Sch
PORTERVILLE
(BM 459)
City Hall
West Putnam Sch
Drive-in Theater
STREET
High School
Olive St Sch
Murry Hill
Murry Park
Mile 54
Trailer Park
Porterville College
Pioneer Jr High Sch
Plano
Porea
St Anns Cem
Cem
TULE
RIVER
DITCH
POPLAR
CAMPBELL
MORELAND
INDIANA
PACIFIC
MAIN
DATE
ORANGE
PUTNAM
AVE
Pit
2 LANE
T. 21 S.
T. 22 S.
SPRINGVILLE 16 MI.
CAMP NELSON 33 MI.
(SUCCESS DAM)
2256 III SW
BM 432
BM 439
BM 434
BM 459
BM 435
BM 442
BM 445
TU 283
TU 751
TU 189
TU 446
TU 419
TU 1061
TU 1052
TU 1031
TU 532
TU 533
TU 630
TU 635
TU 1015
TU 1080
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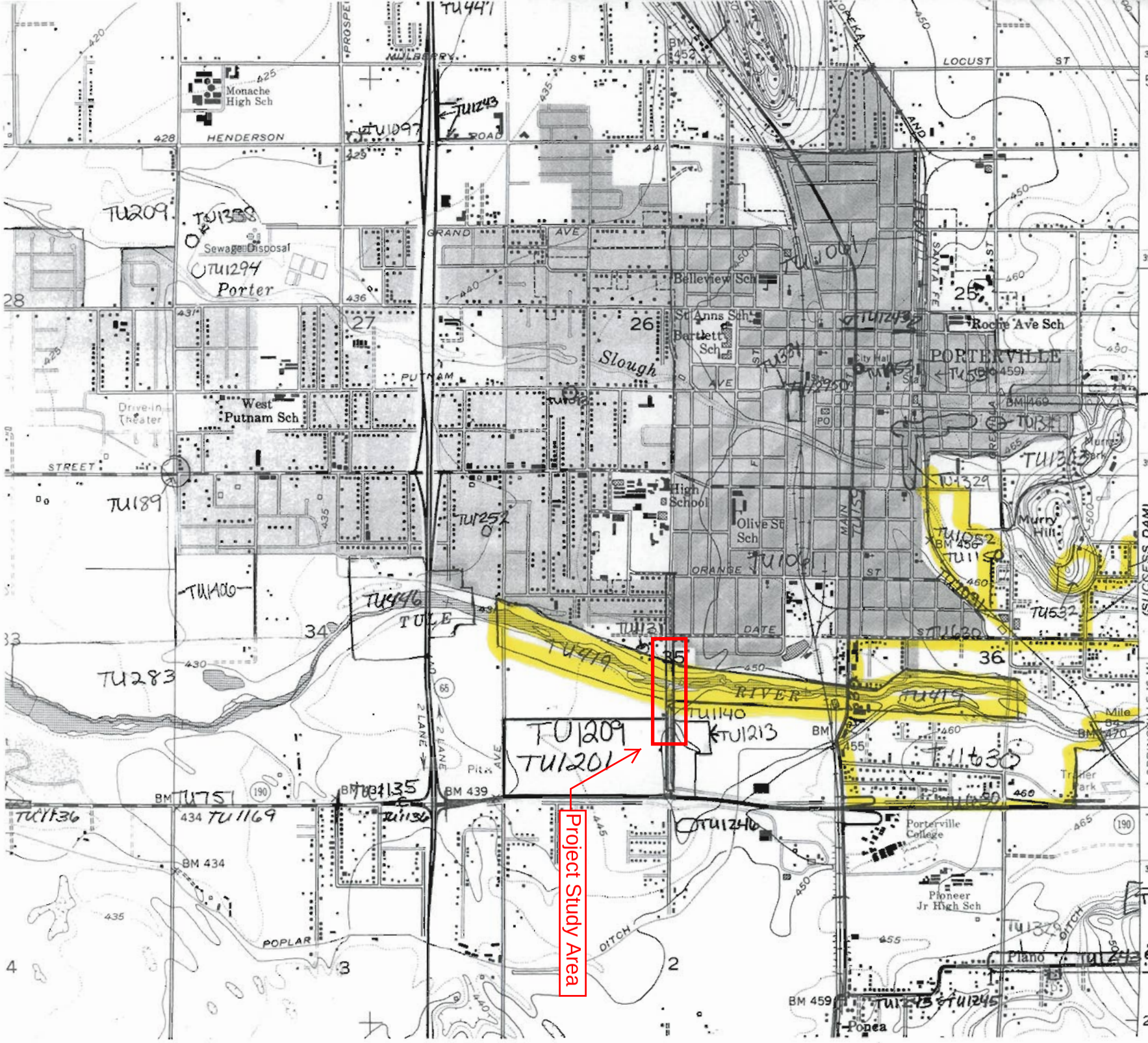
P2207H
P2205H
P2208H
P2203H
P2423(H)
(ED)NR
Porterville 1951 (PR 1969)


Porterville (PR 1969) 1951
TU630
419
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Monache High Sch
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Sewage Disposal
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Belleview Sch
St Anns Sch
Bartlett Sch
Slough
PORTERVILLE
Rocky Ave Sch
West Putnam Sch
Drive-In Theater
STREET
High School
Olive St Sch
ORANGE
DATE
MAIN
Murry Hill
(SUCCESS DAM)
TULE
RIVER
Mile 84
Trailer Park
Porterville College
Pioneer Jr High Sch
POPLAR
DITCH
Plano
Ponea
T. 21 S.
T. 22 S.
2'30"
Project Study Area
TU209
TU1294
TU1189
TU1400
TU446
TU283
TU1209
TU1201
TU1213
TU1140
TU419
TU630
TU532
TU585
TU1245
TU1243
TU1240
TU1169
TU1136
TU1135
TU751
TU1097
TU1243
TU1001
TU1329
TU1052
TU1150
TU1252
TU1331
TU1329

TU 419 (1997)

ARCHAEOLOGICAL ASSESSMENT OF PHASE I OF THE TULE RIVER PARKWAY, CITY OF PORTERVILLE, TULARE COUNTY, CALIFORNIA

by

Robert E. Parr

Center for Archaeological Research
California State University
9001 Stockdale Highway
Bakersfield, CA 93311-1099

At the request of Jardin Landscape Architecture, Inc. an archaeological assessment was conducted for Phase I of the proposed Tule River Parkway located in the City of Porterville, Tulare County, California. The assessment consisted of an archaeological records search, an on-foot survey of the proposed project property, and consultation with several public agencies and private concerns regarding historical resources located within the project.

Because the majority of the subject property is located within state and federal floodplain boundaries and federal funding is involved, the proposed project is considered a federal undertaking as defined in 36 CFR § 800.2(o). Consequently, for purposes of cultural resource protection, the project is subject to federal regulations (i.e., the National Historic Preservation Act [NHPA]).

The purpose of this study is to identify and document any archaeological resources that might be located within the boundaries of the proposed project, to establish if any such resources are significant pursuant to federal criteria, and, if so, whether they will be impacted by the proposed project. This study addresses prehistoric sites and historical ruins more than 45 years old.

In order for potential impacts to archaeological resources to be considered significant under federal law, the resources in question must be found to be eligible or potentially eligible for listing in the National Register of Historic Places (NRHP) according to criteria for eligibility published in 36 CFR 60.4:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or

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Central Coast Division/Administration
1525 Seabright Ave.
Santa Cruz, California 95062

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Fax: 831.423.0587
www.pacificlegacy.com

January 26, 2003

Ms. Eloise Emery, Planner
QUAD KNOPF
5110 W. Cypress Ave.
Visalia, CA 93277

RE: Jaye Street Archaeological Survey

Eloise;

This letter documents the results of archaeological investigations on south Jaye Street from Highway 190 to Orange Street, Porterville, in **Tulare County,** California. No historic or prehistoric resources were encountered during this survey.

PROJECT DESCRIPTION

A project location map is attached. UTM coordinates (Porterville, CA USGS 7.5′ quadrangle; UTM zone 11) of the area covered for the archaeological survey are as follows: 317590meters easting/ 3992440meters northing to 317560meters easting and 3991380meters northing.

SETTING

The project area is located on the west side of the city of Porterville, California. The surveyed area is southern Jaye Street, between Orange Street and Highway 190, approximately .60 miles in length. The area is currently developed with a mix of commercial and residential buildings. The southern end of Jaye Street at the intersection with Highway 190 is open agricultural land. The topography in the surveyed area is level. The east-west trending Tule River flows under the road near the southern end of the surveyed area.

ETHNOGRAPHIC BACKGROUND

The project area lies within the territory ascribed ethnographically to the Yokuts, a group of more than forty linguistically and culturally related tribelets. At the time of Spanish contact, the Yokuts populated the entire San Joaquin Valley as well as the lower slopes of the Sierra Nevada range (Kroeber 1953). In the Porterville area, the principal village was Choko Weshau (or Chokowisho), on the north bank of the Tule River. This ethnographic village site is approximately a mile and a half east of Jaye Street. This site is associated with the Koyete (also spelled Coyehete or Koyeti) tribelet, whose traditional territory was in the Porterville vicinity (Kroeber 1953; Latta 1949). An 1806 account of the Koyete estimated their population at 400 persons (Kroeber 1953). The people of Chokowisho were later removed to the Monache Reservation in the 1850's, then to the Tule River Reservation (Weinberger 1979). Currently, the Tule River Reservation is approximately twelve miles east of Porterville.

Southern San Joaquin Valley
ARCHAEOLOGICAL INFORMATION CENTER
CAL STATE UNIVERSITY BAKERSFIELD
9001 STOCKDALE HIGHWAY
BAKERSFIELD, CALIFORNIA 93311-1099

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TU-01140

HISTORICAL BACKGROUND

The written record of the region begins with Pedro Fages and the Spanish cavalry entering the area in 1772 (Latta 1949). Fages was the first European to view the San Joaquin Valley and the "San Joaquin Plains." He described the Yokuts village of Tulamniu (Telúmneu), near Buena Vista Lake, as well as several other features of the landscape and the native population. In 1776, Juan Bautista de Anza ventured into the northwestern San Joaquin Valley. Though no Missions were established within the San Joaquin Valley proper, refugees from Missions along the coast frequented the Yokuts villages. After secularization of the Missions in the 1830's, Americans began to come into the Valley on their way to the gold mining areas in the Sierra Nevada. The town of Porterville was named after Royal Porter Putnam. Mr. Putnam established a hotel and store in 1860 to accommodate the influx of miners. The town incorporated in 1902. The 1930's and 1940's saw an increase in the local population as a result of immigration to the area who were drawn to the area for employment in the agriculture industry. Today the Porterville vicinity is a large agricultural area noted for its citrus and livestock.

INVENTORY METHODS

Prior to fieldwork, a search of archaeological site records was conducted at the Southern San Joaquin Information Center at California State University in Bakersfield for known sites within one mile of the project area (Records Search Number 01-326). In addition, the Office of Historic Preservation's Directory of Historic Properties, the California Inventory of Historic Resources and the Sacred Lands Files of the California Native American Heritage Commission were searched. Results of these documents indicated that there are no previously recorded archaeological sites or historic properties within the project area.

The survey parcel consists of a ten-meter-wide transect on either side of Jaye Street between Orange Street and Highway 190. Transects were conducted by means of pedestrian survey. Soils were inspected where possible, and particular attention was given to the area in the immediate vicinity of the Tule River crossing. Ground surface visibility is nearly 100 per cent on roadside rights-of-way near the Tule River and south towards Highway 190. In the developed residential area closer to Orange Street, the ground surface visibility is as little as 5 per cent, where it can be seen. Approximately 20 per cent of the survey area is open and undeveloped. Survey coverage was a total of 1.2 miles in length. No historic or prehistoric resources were observed within the survey parcel.

STUDY FINDINGS

There are no known cultural resources identified within the project area, but there is a possibility of subsurface deposits.

MANAGEMENT RECOMMENDATION

If subsurface archaeological remains are encountered during construction, a qualified archaeologist should be notified and work will not commence until the area can be inspected and a determination of significance is made.

REFERENCES CITED

Latta, Frank F.
1949 Handbook of Yokuts Indians. Bakersfield, Calif.: Kern County Museum.

TU-01140

State of California-The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #:
HRI #:
Trinomial:

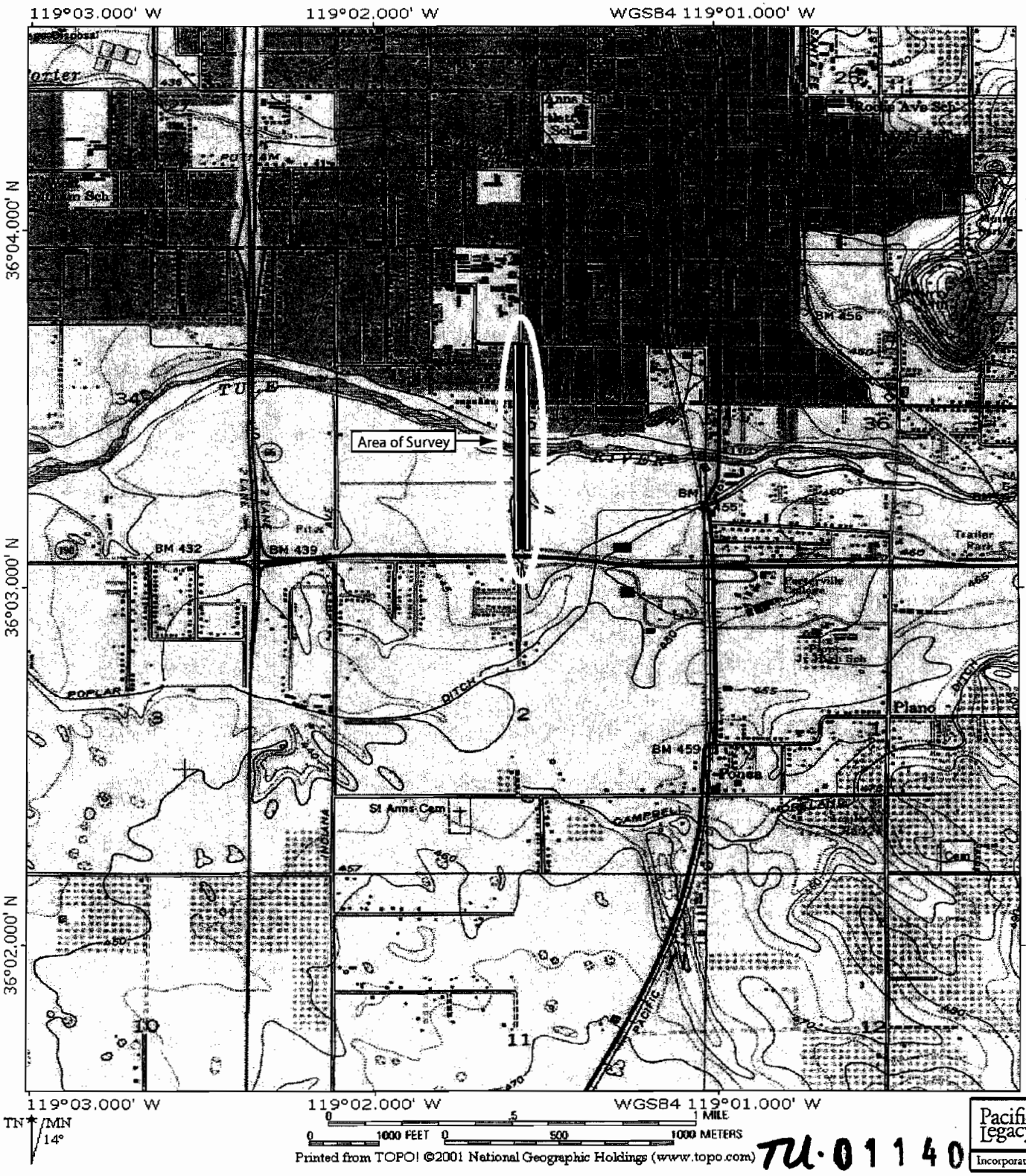
Page of

Resource Name or Number:

Map Name: Jaye Street

Scale: ☒ 1:24,000 ☐ Other:

Date of Map: 1951



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February 7, 2003

Ms. Adele Baldwin
Southern San Joaquin Valley Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, CA 93311

RE: Jaye Street Archaeological Survey, Porterville, California

Adele;
Enclosed is a copy of a report of an archaeological survey that I conducted on the 22nd of January, 2003. As you can see from the attached, no cultural resources were encountered during the survey. If you have questions or comments regarding this project, they can be directed to me at the above address.

Thank you.

Christopher Corey
Staff Archaeologist

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BY:

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Bay Area Division	1027 San Pablo Ave.	Albany, CA 94706	510-524-3991	510-524-4419 Fax
Pacific Basin Division	332 Uluniu St.	Kailua, HI 96734	808-263-4800	808-263-4300 Fax
Sierra and Central Valley Division	3081 Alhambra Dr., Suite 208	Cameron Park, CA 95682	530-677-9713	530-677-9762 Fax

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # P-54-004700
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code | Reviewer | Date

*Resource Name or #: Porterville Historic District

P1. Other Identifier:

*P2. Location: ■Not for Publication ☐ Unrestricted *a. County: Tulare

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Porterville, CA Date: 1969 T 21 S ; R 27E; Sections 25, 26, 35, 36 M.D.B.M.

c. Address: City: Zip:

d. UTM: NAD83 CONUS, Zone: 11;

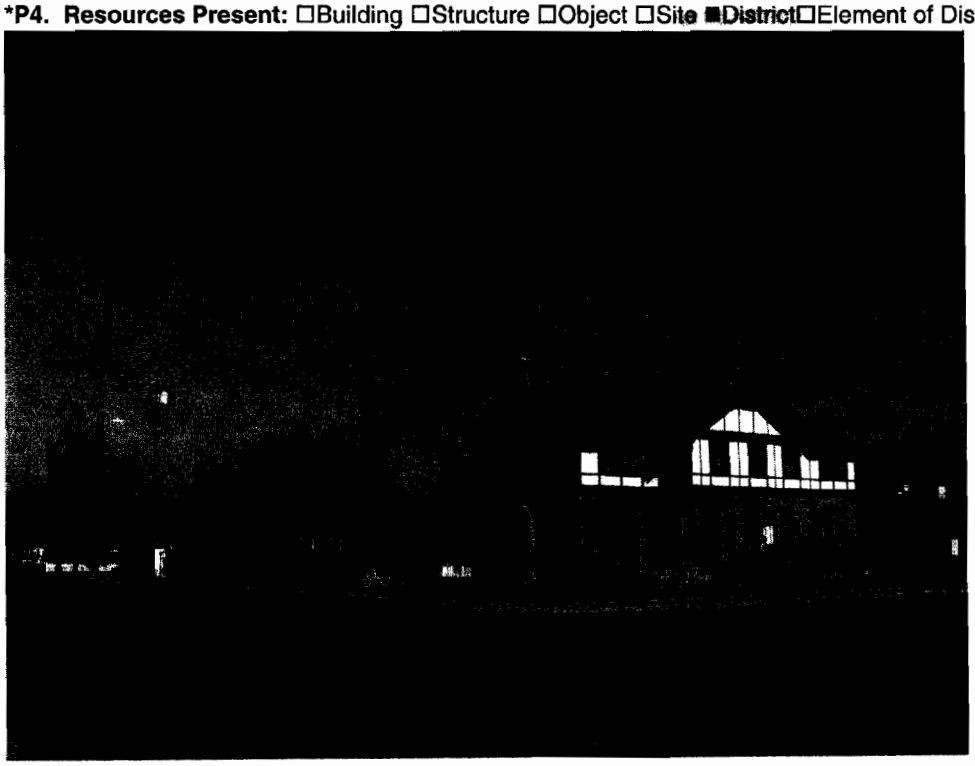
A) 318454 mE / 3994375 mN; B) 317536 mE / 3993569 mE; C) 318639 mE / 3992327 mN; D) 319521 mE / 3993569 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Porterville Historic District is located in downtown Porterville in Tulare County. The districts' boundaries correspond to the city limits ca. 1902 and are bounded by Grand Ave. to the north, Date St. to the south, N. Palm St to the west and N. Henry St. to the east.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries): Porterville Historic District is comprised of 10 commercial and residential districts which include over 336 individual residences, 89 special structures and sites, including churches, schools, museums, government and commercial structures. 42 of the surveyed structures appear to be eligible for inclusion to the National Register of Historic Places (NRHP), for three of which Registry application has been filed. The initial inventory included 1,500 structures of which only 700 were photographed and structural descriptions for approximately 450 of the 700 buildings photographed were written. The original property survey was conducted by Vaughan and Winckler (1986); however, aside from the survey report no additional information was submitted to the Information Center. This record was prepared during SCE's DSP and pole replacement project along the Success 12 kV distribution circuit.

*P3b. Resource Attributes: (List attributes and codes) AH 15 Standing structures

*P4. Resources Present: ☐Building ☐Structure ☐Object ☐Site ■District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) Single family residence constructed ca. 1910, located at 345 E. Oak Ave., view northeast (AMEC IMG_1097).

*P6. Date Constructed/Age and Sources: ■Historic ☐Prehistoric ☐Both

*P7. Owner and Address: Private

*P8. Recorded by: Hubert Switalski, AMEC Earth and Environmental, 5518 Sierra Caves Ave., Bakersfield, CA 93313.

*P9. Date Recorded: 12/07/07

*P10. Survey Type: Intensive survey.

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Switalski H. 2008. *Archaeological Survey Report for the Southern California Edison Company's Distribution Substation Plan and Pole Replacement Project Along the Success 12 kV Distribution Circuit, Porterville, Tulare County, California.*

Vaughn, W. Jr., and T. Winckler. 1986. *Final Report Porterville Historic Resources Inventory.* Report on file at the Southern San Joaquin Valley Archaeological Information Center, Bakersfield.

*Attachments: ☐NONE ■Location Map ☐Sketch Map ■Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State Of California—The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # P-54-004700

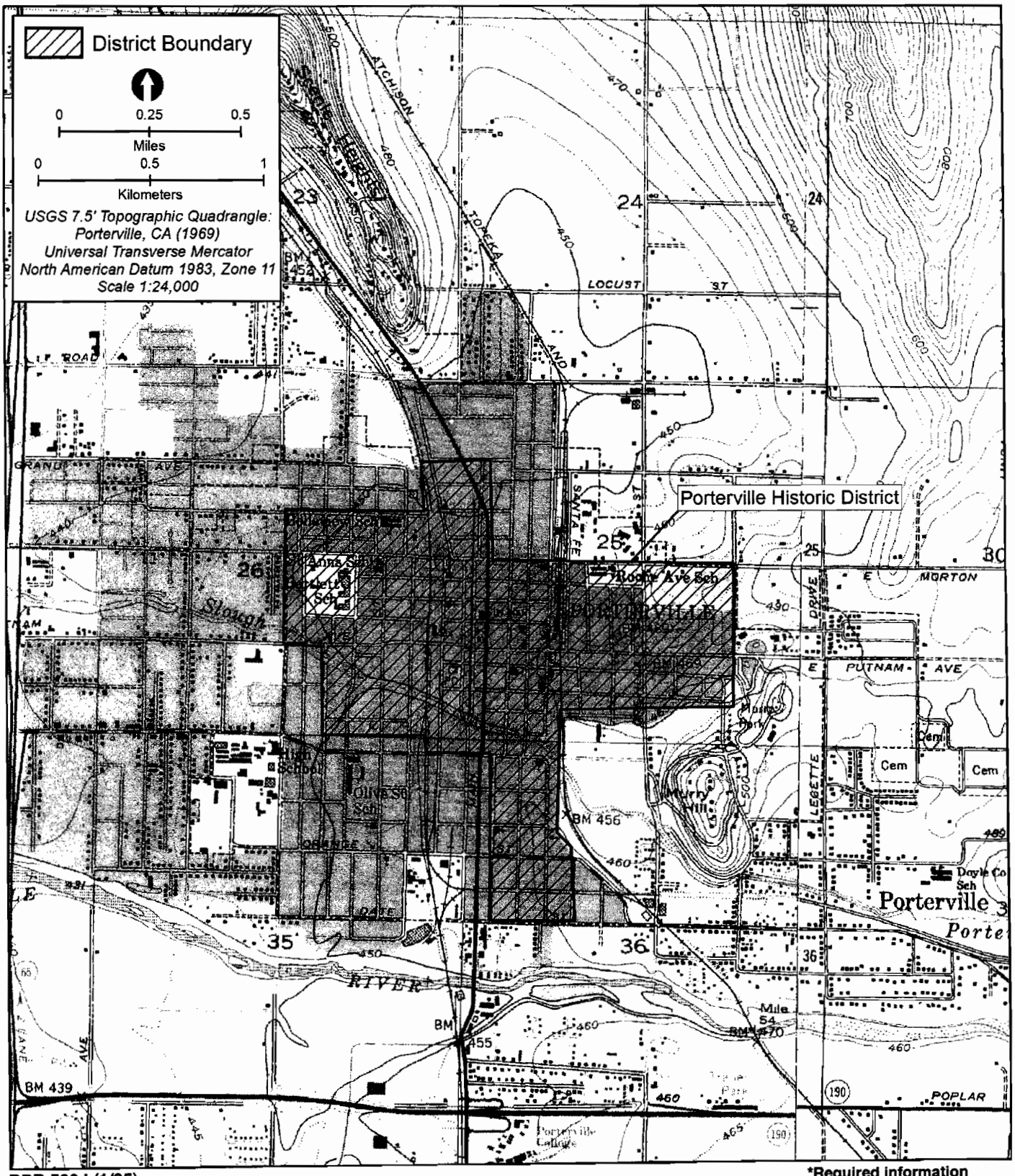
Trinomial

***Resource Name or #:** Porterville Historic District

***Map Name:** Porterville, CA

***Scale:** 1:24,000

***Date of Map:** 1969



DPR 523J (1/95)

*Required information

Attachment 2: Caltrans SM&I Data Sheet, Historical Significance, Local Agency Bridges (June 2009)

Caltrans Structure Maintenance & Investigations Data Sheet,
Historical Significance, Local Agency Bridges (June 2009)

Structure Maintenance & Investigations

SM&I

January 2011

Historical Significance - Local Agency Bridges

District 06

Tulare County

Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Wid/Ext
46C0060	CROSS CREEK	1.15 MI S OF AVE 352	5. Bridge not eligible for NRHP	1962	
46C0061	TRAVER CANAL	AT ROAD 48	5. Bridge not eligible for NRHP	1961	
46C0062	SAND CREEK	AVE 384 @ RD 108	5. Bridge not eligible for NRHP	1961	
46C0063	ELK BAYOU	0.7 MI N OF AVE 200	5. Bridge not eligible for NRHP	1962	
46C0064	MENDOCINO AVENUE OH	600' N MENDOCINO AVE OC	5. Bridge not eligible for NRHP	1964	
46C0065	OUTSIDE CREEK	0.3 MI W OF RD 180	5. Bridge not eligible for NRHP	1965	
46C0066	JOHNSON SLOUGH	0.5 MI W OF RD 180	5. Bridge not eligible for NRHP	1966	
46C0067	TRAVER CANAL	@ AVENUE 416	5. Bridge not eligible for NRHP	1963	
46C0068	DEEP CREEK	BTWN LARRY ST & COSTNR ST	5. Bridge not eligible for NRHP	1963	
46C0069	ELK BAYOU	0.6 MI WEST OF ROAD 96	5. Bridge not eligible for NRHP	1965	
46C0070	ST JOHNS RIVER	0.9 MI W OF RD 108	5. Bridge not eligible for NRHP	1968	
46C0071	PORTER SLOUGH	0.5 MI S OF AVE 184	5. Bridge not eligible for NRHP	1966	
46C0072	TULE RIVER	0.4 MI N OF AVE 168	5. Bridge not eligible for NRHP	1930	1966
46C0073	DEER CREEK	0.9 MI N OF AVE 104	5. Bridge not eligible for NRHP	1967	
46C0076	TULE RIV & POPLAR DITCH	0.4 MI N OF SR 190	5. Bridge not eligible for NRHP	1953	
46C0077	COTTONWOOD CREEK	2.0 MI S OF SR 201	5. Bridge not eligible for NRHP	1968	
46C0078	NORTH FORK KAWEAH RIVER	3.24 MI N OF SR 198	5. Bridge not eligible for NRHP	1967	
46C0079	MIDDLE FORK TULE RIVER	0.3 MI S OF SR 190	5. Bridge not eligible for NRHP	1969	
46C0080	MIDDLE FORK TULE RIVER	0.1 MI E OF FAP 190	5. Bridge not eligible for NRHP	1969	
46C0083	NORTH FORK TULE RIVER	0.19 MI NE OF SM239	5. Bridge not eligible for NRHP	1967	
46C0084	NORTH FORK TULE RIVER	0.3 MI N OF SM296	5. Bridge not eligible for NRHP	1967	
46C0085	SOUTH FORK TULE RIVER	0.7 MI N OF M 137	5. Bridge not eligible for NRHP	1967	
46C0086	DEER CREEK	0.3 MI S OF M120	5. Bridge not eligible for NRHP	1967	
46C0087	DEER CREEK	0.5 MI E OF R 272	5. Bridge not eligible for NRHP	1967	
46C0088	DEER CREEK	4.19 MI E RD 272	5. Bridge not eligible for NRHP	1967	
46C0091	WHITE RIVER	1.8 MI S OF AVE 56	5. Bridge not eligible for NRHP	1931	
46C0092	SAND CREEK	0.4 MI EAST OF SR 63	5. Bridge not eligible for NRHP	1959	
46C0093	FRIANT-KERN CANAL	2 MI EAST OF ROAD 144	4. Historical Significance not determined	1948	
46C0094	FRIANT-KERN CANAL	0.05 MI EAST OF ROAD 208	4. Historical Significance not determined	1949	
46C0095	TULE RIVER	0.5 MI S OF AVE 168	5. Bridge not eligible for NRHP	1969	1980
46C0098	TULE RIVER	0.6 MI N OF SR 190	5. Bridge not eligible for NRHP	1972	
46C0099	TULE RIVER	0.4 MI N OF SR 190	5. Bridge not eligible for NRHP	1970	
46C0101	DEER CREEK	0.1 MI N OF A104	5. Bridge not eligible for NRHP	1949	
46C0106	DEER CREEK	0.1 MI S OF A72	5. Bridge not eligible for NRHP	1971	
46C0107	DEER CREEK	1.2 MI S/O AVENUE 96	5. Bridge not eligible for NRHP	1971	
46C0108	DEER CREEK	0.2 MI E OF RD 176	5. Bridge not eligible for NRHP	1971	
46C0109	DEER CREEK	0.35 MI N OF A108	5. Bridge not eligible for NRHP	1970	
46C0110	LEWIS CREEK	0.16 MI N OF AVE 220	5. Bridge not eligible for NRHP	1970	
46C0111	PORTER SLOUGH	0.1 MI S OF MORTON AVE	5. Bridge not eligible for NRHP	1955	
46C0112	OUTSIDE CREEK	0.7 MI W OF RD 180	5. Bridge not eligible for NRHP	1975	
46C0113	KAWEAH RIVER	0.5 MI N OF AVE 304	5. Bridge not eligible for NRHP	1990	
46C0114	YOKOHL CREEK	JUST SOUTH OF M296	5. Bridge not eligible for NRHP	1987	
46C0115	COTTONWOOD CREEK	0.1 MI W OF SR 145	5. Bridge not eligible for NRHP	1986	

Attachment 3: Native American Consultation

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

March 9, 2011

Kristina Roper
Sierra Valley Cultural Planning
41845 Sierra Drive
Three Rivers, CA 93271

Sent by Fax · 559-561-6041
Number of Pages: 3

RE: Plano Street Bridge Widening Project, Tulare County

Dear Ms. Roper:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

Gloria Torres
- for -
Katy Sanchez
Program Analyst

Native American Contact List
Tulare County
March 8, 2011

Santa Rosa Rancheria
Rueben Barrios, Chairperson
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278
(559) 924-3583 Fax

Tache
Tachi
Yokut

Sierra Nevada Native American Coalition
Lawrence Bill, Interim Chairperson
P.O. 125
Dunlap , CA 93621
(559) 338-2354

Mono
Foothill Yokuts
Choinumni

Tule River Indian Tribe
Ryan Garfield, Chairperson
P.O. Box 589
Porterville , CA 93258
(559) 781-4271
chairman@tulerivertribe-nsn.gov
(559) 781-4610 FAX

Yokuts

Esohm Valley Band of Indians/Wuksache Tribe
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas , CA 93906
kwood8934@aol.com
831-443-9702

Foothill Yokuts
Mono

Ron Wermuth
P.O. Box 168
Kernville , CA 93238
warmoose@earthlink.net
(760) 376-4240 - Home
(916) 717-1176 - Cell

Tubatulabal
Kawaiisu
Koso
Yokuts

Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon , CA 93283
brobinson@iwvisp.com
(760) 378-4575 (Home)
(760) 549-2131 (Work)

Tubatulabal
Kawaiisu
Koso
Yokuts

Kern Valley Indian Council
Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA 93240
(661) 366-0497
(661) 340-0032 - cell

Southern Paiute
Kawaiisu
Tubatulabal
Koso
Yokuts

Wukchumni Tribe
John Sartuche
929 N. Lovers Lane
Visalia , CA 93292
signsbysarch@aol.com
(559) 636-1136

Wukchumni

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Plano Street Bridge Widening Project; Tulare County.

Native American Contact List
Tulare County
March 8, 2011

Jennifer Malone
637 E Lakeview
Woodlake , CA 93286
indianpopup@sbcglobal.net
559-564-2146 - home
559-280-0712 - cell

Wukchumni
Tachi
Yowlumni

Santa Rosa Tachi Rancheria
Lalo Franco, Cultural Coordinator
P.O. Box 8
Lemoore , CA 93245
(559) 924-1278
(559) 924-3583

Tachi
Tache
Yokut

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Plano Street Bridge Widening Project; Tulare County.

HISTORIC PROPERTY SURVEY REPORT

1. UNDERTAKING DESCRIPTION AND LOCATION

District	County	Route *(Local Agency)*	*Local Assistance Project Prefix*	Post Miles *(Project No.)*	Charge Unit *(Agreement)*	Expenditure Authorization *(Location)*
06	TUL	Tulare	5122	036		Bridge 46 C0099 on Jaye St crossing Tule River, Porterville

Project Description:

The County of Tulare proposes to widen the extant bridge (No. 46 C0099) on Jaye Street where it crosses the Tule River in its existing alignment to a 4-lane bridge, add sidewalks, rehabilitate bridge and upgrade bridge railings, and reconstruct street approaches (Map 1 and 2).

2. AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) for the project was established in consultation with Professionally Qualified Staff John Whitehouse and Local Assistance Engineer Kirk M. Anderson, on 1 August 2011. Bridge Number 46 C0099 is located in the City of Porterville and conveys Jaye Street over the Tule River (Map 1). The Area of Potential Effects (APE) will include the 241'6'–long bridge with an additional 600+ feet (on the north) and 350+ feet (on the south) of roadway reconstruction on each side of the bridge. Temporary construction easements and contractor staging areas are also included within the Project APE (see Map 2).

3. CONSULTING PARTIES / PUBLIC PARTICIPATION

√ Native American Heritage Commission (1 March 2011)

- Request for NAHC review submitted 1 March 2011 and response received 11 March 2011. While no Native American resources were identified by the NAHC, a list of local Native American tribes and individuals was provided for consultation. Letters were written to each individual describing the project; no responses were received as of 30 September 2011.

4. SUMMARY OF IDENTIFICATION EFFORTS

√	National Register of Historic Places	Month & Year: 1979-2002 & supplements
√	California Register of Historical Resources	Year: 2000 & supplemental information to date
√	California Inventory of Historic Resources	Year: 1976
√	California Historical Landmarks	Year: 1995 & supplemental information to date
√	California Points of Historical Interest	Year: 1992 & supplemental information to date
√	State Historic Resources Commission	Year: 1980-present, minutes from quarterly meetings

√ Archaeological Site Records

- Southern San Joaquin Valley Information Center, CSU Bakersfield, 13 June 2011

√ **Results:**

- There are no previously recorded cultural resources within the Project APE.

For the federal undertaking described in Part 1: To minimize redundancy and paperwork for the California Department of Transportation and the State Historic Preservation Officer, and in the spirit intended under the federal Paperwork Reduction Act (U.S.C. 44 Chapter 35), this document also satisfies consideration under California Environmental Quality Act Guidelines Section §15064.5(a) and, as appropriate, Public Resources Code §5024 (a)(b) and (d).

HISTORIC PROPERTY SURVEY REPORT

5. PROPERTIES IDENTIFIED

√ **Bridges listed as Category 5** in the Caltrans Historic Highway Bridge Inventory are present within the APE. Appropriate pages from the Caltrans Historic Bridge Inventory are attached.

6. LIST OF ATTACHED DOCUMENTATION

√ Project Vicinity, Location, and APE Maps
√ California Historic Bridge Inventory sheet
√ Archaeological Survey Report (ASR)
- C. Kristina Roper, 30 September 2011

7. HPSR to File

√ **No properties requiring evaluation** are present within the Project APE.

8. HPSR to SHPO

√ Not applicable.

9. Findings for State-Owned Properties

√ Not applicable; project does not involve Caltrans right-of-way or Caltrans-owned property.

10. CEQA IMPACT FINDINGS

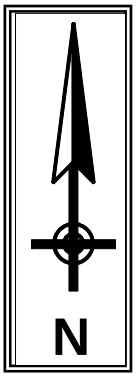
√ Not applicable; Caltrans is not the lead agency under CEQA.

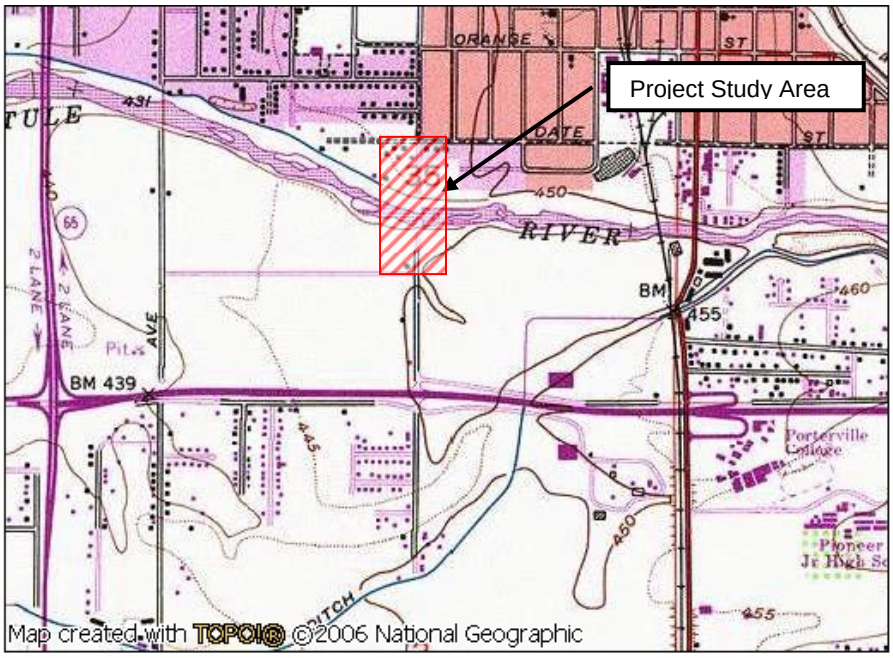
11. HPSR PREPARATION AND DEPARTMENT APPROVAL

Prepared by: *(sign on line)*		30/09/2011
Consultant / discipline:	*C. Kristina Roper, M.A., Registered Professional Archaeologist*	Date
Affiliation	*Sierra Valley Cultural Planning* *41845 Sierra Drive, Three Rivers, CA 93271*	
Reviewed for approval by: *(sign on line)*		
District 06 Caltrans PQS discipline/level:	Principal Architectural Historian Principal Investigator – Prehistoric Archaeology Principal Investigator – Historical Archaeology	Date
Approved by: *(sign on line)*		
District 06 EBC:	San Joaquin Valley Environmental Management Branch	Date

MAP 1. PROJECT VICINITY

Bridge 46 C0099, Jaye Street Bridge Rehabilitation, Tule River





USGS Porterville (1969), Calif., 7.5', T21S / R 27E, Section 35.

0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

TN MN
14°
09/30/11

Map 2. Project Location / Area of Potential Effects (APE).

Appendix E

Noise Study Report

NOISE STUDY REPORT

JAYE STREET BRIDGE WIDENING PROJECT
PORTERVILLE, CALIFORNIA

FEDERAL PROJECT NUMBER: BRLS-5122 (036)

BBA Report 11-015

PREPARED FOR

QUAD KNOPF
5110 WEST CYPRESS AVENUE
VISALIA, CALIFORNIA 93278

PREPARED BY

BROWN-BUNTIN ASSOCIATES, INC.
VISALIA, CALIFORNIA

APRIL 12, 2012

1148 N. Chinowth St., Suite B · Visalia, CA 93291· (559) 627-4923 · (559) 627-6284 Fax

BROWN • BUNTIN
ASSOCIATES, INC.

EXECUTIVE SUMMARY

The City of Porterville proposes to widen the Jaye Street bridge and it's approaches, from Date Avenue to approximately 200 feet north of Springville Avenue, to two lanes in each direction (four lanes total), connecting to existing 4-lane roads at the Date Avenue intersection to the north and the Springville Avenue intersection to the south. Existing land uses in the project area are commercial and residential.

The purpose of this Noise Study Report (NSR) is to evaluate noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise". That regulation provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. The Caltrans document *"Traffic Noise Analysis Protocol (Protocol)"* presents Caltrans policies and procedures for applying 23 CFR 772 in the state of California. The regulations presented in the Protocol apply to any highway project that requires FHWA approval or is funded with Federal-aid highway funds.

Although traffic noise impacts are not expected to occur as a result of the Project, existing traffic noise levels approach the NAC (Noise Abatement Criteria) as defined by Caltrans. Therefore, noise abatement measures have been considered as a part of this analysis.

Appendix A provides a discussion of the traffic noise fundamentals and the acoustical terminology utilized in this report. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

PROJECT DESCRIPTION

The project consists of a proposal to widen the Jaye Street bridge and it's approaches to the north and the south from the existing 2-lane road to a 4-lane road, connecting to existing 4-lane roads at the Date Avenue intersection to the north and the Springville Avenue intersection to the south. Figure 1 shows the project location. The proposed project consists of two rehabilitation alternatives and two replacement alternatives. A 'No Project' alternative was also analyzed in this noise study report, as required by the Protocol.

The project alternatives are as follows:

1A: Widen existing structure on East side with eight-span CIP reinforced concrete slab bridge.

1B: Widen existing structure on both sides with eight-span CIP reinforced concrete slab bridge.

2: Replace existing structure with three-span CIP prestressed concrete box girder.

3: Replace existing structure with seven-span CIP reinforced concrete slab bridge.

4: No Project-the Jaye Street bridge and its approaches would remain in the existing 2-lane configuration.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

Federal Noise Standards:

Title 23, Part 772 of the Code of Federal Regulations (CFR), titled "Procedures for Abatement of Highway Traffic Noise and Construction Noise" outlines procedures for noise studies that are required for approval of Federal-aid highway projects. The Federal Highway Administration (FHWA) requires that State highway agencies prepare state-specific policies and procedures for applying 23 CFR 772.

State Noise Standards:

The *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (2011 Caltrans Protocol)[1] presents the California Department of Transportation (Caltrans) policies and procedures for applying 23 CFR 772 in California. The Caltrans Protocol applies to local agency projects that receive Federal funding or require FHWA approval action. Additionally, the Caltrans *Technical Noise Supplement* (2009 TeNS)[2] has been prepared to provide technical guidance for the preparation of required noise studies within California. It is intended that a noise study conducted according to the Caltrans Protocol and TeNS will contain the analysis required for completion of environmental documentation under the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA).

Under 23 CFR 772.7, projects are categorized as Type I or Type II projects. A Type I project is a project that includes the construction of a new highway at a new location or the physical alteration of an existing highway which significantly changes the horizontal or vertical alignment or increases the number of through traffic lanes. The proposed Jaye Street Bridge widening project is considered a Type I project because it would result in adding through traffic lanes. A Type II project is a barrier retrofit project that involves no changes to highway capacity or alignment.

Traffic noise impacts as defined by 23 CFR 772.5 occur when the predicted traffic noise level in the design year approaches or exceeds the Noise Abatement Criteria (NAC) specified by 23 CFR 772 or substantially exceeds the existing noise level. A noise level is considered to approach the NAC for a given activity if it is within 1 dB of the NAC.

A substantial noise increase occurs when the project's worst-hour design-year noise level, as defined by the equivalent sound level (L_{eq}), exceeds the existing worst-hour noise level by 12 dB or more.

Table I summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area.

TABLE I

ACTIVITY CATEGORIES AND NOISE ABATEMENT CRITERIA (NAC)

Activity Category	NAC, Hourly A-Weighted Noise Level (dBA-L_{eq}[h])	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in categories A or B above
D	---	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from the roadway or physically shielded in a manner that prevents an impact on exterior activities, the interior criterion (Activity Category E) is used as the basis for determining a noise impact.

Local Noise Standards:

The City of Porterville Noise Element of the General Plan establishes noise level criteria in terms of the Day-Night Average Level (DNL) metric. The DNL is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The DNL represents cumulative exposure to noise over an extended period of time and is therefore calculated based upon annual average conditions.

The Noise Element establishes a land use compatibility criterion of 60 dB DNL for exterior noise levels in outdoor activity areas of residential developments. Outdoor activity areas generally include backyards of single-family residences and individual patios or decks of multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

The Noise Element also requires that interior noise levels attributable to exterior noise sources not exceed 45 dB DNL. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

Construction Noise and Vibration:

There are no Caltrans or FHWA standards for construction noise or vibration. One reference suggesting vibration standards is the Federal Transit Administration (FTA) publication concerning noise and vibration impact assessment from transit activities[3]. 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 vibration velocity level of 80 VdB 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.

The City of Porterville has set forth vibration guidelines described in the Development Ordinance Section 307.06, which states that "no vibration shall be produced that is discernable without the aid of instruments by a reasonable person at the lot lines of the site. Vibration from temporary construction, demolition, and vehicles that enter and leave the subject parcel (e.g., construction, equipment, trains, trucks, etc.) are exempt from this standard." In reference to Development Ordinance Section 307.06, the project is exempt from local vibration standards.

METHODS FOR IDENTIFYING TRAFFIC NOISE IMPACTS AND CONSIDERATION OF ABATEMENT

Traffic noise impacts are considered to occur at receiver locations where predicted future noise levels are at least 12 dB greater than existing noise levels (and defined as a substantial noise increase), or where predicted future noise levels approach (where the level is 1 dBA below the NAC) or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

The overall reasonableness of noise abatement is determined by considering factors such as cost, absolute predicted noise levels, predicted future increase in noise levels, expected noise abatement benefits, build date of surrounding residential development along the highway, environmental impacts of abatement construction, opinions of affected residents, input from the public and local agencies, and social, legal, and technological factors.

23 CFR 772 states that for noise abatement to be considered acoustically feasible, it must be predicted to provide at least a 5 dB minimum reduction at an impacted receptor. Additionally, 23 CFR 772 now requires an acoustic design goal for abatement. The Caltrans acoustic design goal is that noise abatement must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receivers, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access

requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. A cost-per-residence allowance is calculated for each benefited residence (i.e., residences that receive at least 5 dB of noise reduction from a noise barrier). The 2011 base allowance is $55,000. Additional allowance dollars are added to the base allowance based on absolute noise levels, the increase in noise levels resulting from the project, achievable noise reduction, and the date of building construction in the area. Total allowances are calculated by multiplying the cost-per-residence by the number of benefited residences. If the total allowance for all evaluated noise barriers is more than 50% of the estimated construction cost, the allowance per residence is modified to a reduced value.

EXISTING NOISE LEVELS

The predominant existing noise source affecting the project site and surrounding area is traffic on Jaye Street and other more distant roadways. Existing land uses adjacent to Jaye Street in the project area include residences, commercial buildings and vacant land. The closest potentially impacted receivers in the project area are single-family residences on the east and west sides of Jaye Street, north of the bridge, and a multi-family apartment complex (Villa Robles Apartments) on the west side of Jaye Street, south of the bridge.

The posted vehicle speed limit on Jaye Street in the project area is 35 miles per hour (mph). It was observed through vehicle pacing that 35 mph closely represents the speed actually travelled by vehicles on the section of Jaye Street affected by the project. The project roadway is generally flat relative to adjacent uses.

Existing traffic noise levels were measured at two locations on April 2, 2012. The monitoring sites were located in close proximity to two of the potentially impacted receivers, approximately 40 feet west and 60 feet west of the center of the existing roadway. The noise monitoring sites are noted on Figure 1. Short term measurements were conducted to determine if adjustments to the noise model would be necessary, as discussed later in this report.

Figure 1 Project Area, Short Term Noise Monitoring Sites, Receivers and Proposed Barrier Location

Noise monitoring equipment consisted of a Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2" microphone. The equipment complies with the Caltrans Protocol and specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated in the field prior to use with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements. The microphone was located on a tripod at five (5) feet above the ground and away from reflective surfaces that could affect the accuracy of the measurements. Meteorological conditions at the time of the measurements consisted of calm wind, an ambient air temperature of approximately 65°F and approximately 30-35% relative humidity.

Noise measurements were conducted for 15-minute sample periods at each of the two short-term monitoring sites (ST-1 and ST-2). Concurrent traffic counts were conducted during the measurement periods and projected for a one-hour period. Noise measurement and traffic count data are summarized in Table II.

TABLE II

SUMMARY OF NOISE MEASUREMENT DATA AND TRAFFIC COUNTS
JAYE STREET AT TULE RIVER
APRIL 2, 2012

	ST-1	**ST-2**
Measurement Start Time	1:45 p.m.	2:10 p.m.
Distance, ft. (from center of roadway)	60	40
Observed # Autos/Hr.	940	828
Observed # Medium Trucks/Hr.	16	48
Observed # Heavy Trucks/Hr.	4	12
Posted/Observed Speed (MPH)	35	35
L_{eq}, dBA (Measured)	62.0	66.6
Source: Brown-Buntin Associates, Inc.		

POTENTIALLY IMPACTED RECEPTORS

Residential land uses in the project area are represented by single-family residences located north of the Jaye Street bridge and multi-family residential units located south of the Jaye Street Bridge. In order to determine the potential noise impacts of the project, three receivers were analyzed for the single-family residences north of the Jaye Street bridge and two receivers were analyzed for the multi-family units south of the Jaye Street bridge (one at ground level and another at the second floor level).

- **Receiver 1:** Receiver 1 is a single-family house located on the west side of Jaye Street about 150 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

- **Receiver 2:** Receiver 2 is a single-family house located on the west side of Jaye Street about 240 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

- **Receiver 3:** Receiver 3 is a single-family house located on the east side of Jaye Street about 240 feet south of Date Avenue. This area is generally flat. The residence faces the roadway and the sensitive receiver location was assumed to be the back yard of the residence. No sound barriers or topographical shielding occurs between the roadway and the residential use, but the house shields the back yard.

- **Receiver 4:** Receiver 4 is a ground floor multi-family apartment unit located on the west side of Jaye Street about 325 feet north of Springville Avenue. This area is generally flat. The sensitive receiver location was assumed to be the outdoor patio of the residence, which faces the roadway. No sound barriers or topographical shielding occurs between the roadway and the residential use.

- **Receiver 5:** Receiver 5 is a second floor multi-family apartment unit located on the west side of Jaye Street about 325 feet north of Springville Avenue. This area is generally flat. The sensitive receiver location was assumed to be the outdoor patio of the residence, which faces the roadway. No sound barriers or topographical shielding occurs between the roadway and the residential use.

PROJECT-RELATED NOISE LEVELS

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5)[4]. TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, shielding features (e.g., topography and buildings), noise barriers, ground type, and receivers.

Traffic noise was evaluated under existing conditions, future (2030) conditions and future (2030) no project conditions. Existing and Future ADT traffic volumes were provided by the City of Porterville. Peak hour volumes were estimated by BBA and assumed to be 10% of the ADT volumes. Posted speed limits are 35 mph. The medium and heavy truck mix factors were derived from BBA field observations. Table III summarizes the traffic volumes and assumptions used for modeling existing and future conditions.

TABLE III

TRAFFIC NOISE MODELING ASSUMPTIONS
JAYE STREET AT TULE RIVER

	Existing	(2030) Project	(2030)No Project
Annual Avenue Daily Traffic (AADT)	15,735	23,171	23,171
Typical Peak Hour Volume	1,574	2,248	2,248
Day/Night Split (%)	90/10	90/10	90/10
Posted Vehicle Speed (mph)	35	35	35
% Medium Trucks (% AADT)	2	2	2
% Heavy Trucks (% AADT)	1	1	1

Sources: Brown-Buntin Associates, Inc.
City of Porterville

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at the field measurement locations (ST-1 and ST-2). For each receiver, traffic volumes counted during the short-term measurement periods were normalized to 1-hour volumes. These normalized volumes were utilized to calculate traffic noise levels with the TNM for the conditions observed during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model and to judge whether additional calibration of the model was necessary.

Table IV compares measured and modeled noise levels at each measurement location. The predicted sound levels were within 1 dB of the measured sound levels. This is considered reasonable agreement between measured and predicted sound levels and means that no adjustments to the model are appropriate.

TABLE IV

COMPARISON OF MEASURED TO PREDICTED SOUND LEVELS
IN THE TNM MODEL

	Measured Sound Level (dBA)	Predicted Sound Level (dBA)	Measured minus Predicted (dBA)
ST-1	62.0	61.8	0.2
ST-2	66.6	65.8	0.8

Source: Brown-Buntin Associates, Inc.

Table V summarizes the traffic noise modeling results for existing conditions (Year 2011), future conditions (2030) and future conditions without the project (2030 No Project). Year 2030 traffic noise levels are compared to existing conditions and 2030 No Project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts under 23 CFR 772. The four proposed Jaye Street Bridge widening alternatives previously discussed would result in the same roadway alignments north and south of the bridge.

Noise levels at the impacted receivers would therefore not differ in respect to the four alternatives; as such, it was not necessary to analyze each proposed alternative separately.

TABLE V

PREDICTED EXISTING AND FUTURE NOISE LEVELS
JAYE STREET BRIDGE

Receiver	Land Use	Predicted Traffic Noise Level, dB Leq				Activity Category	Impact
		Existing	2030 No Project	2030 Project	Project minus No Project		
1	Residential	56	58	57	-1	B	None
2	Residential	53	54	54	0	B	None
3	Residential	55	56	58	2	B	None
4	Residential	**66**	**68**	**67**	-1	B	Sound Level
5	Residential	**66**	**68**	**67**	-1	B	Sound Level

[1]values in bold represent noise levels that approach or exceed the NAC

Sources: Brown-Buntin Associates, Inc.
City of Porterville

As stated in the TeNS, modeling results are rounded to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between sound levels of 64.4 and 64.5 dBA. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

Modeling results in Table V indicate that predicted changes in future traffic noise levels with the Project would be less than substantial (less than 12 dB) and would not be considered significant.

The predicted traffic noise levels for the future (2030) with-project conditions approach or exceed the NAC of 67 dBA L_{eq}(h) for Activity Category B land uses at the multi-family residences south of the Jaye Street bridge (receivers 5 and 6). Therefore, traffic noise impacts are predicted to occur at Activity Category B land uses within the project area, and noise abatement must be considered. It should be noted, however, that the predicted traffic noise levels for the future (2030) no project conditions also approach or exceed the NAC, and that predicted noise levels at receivers 5 and 6 would actually decrease slightly as a result of the project. Due to distance from the roadway and acoustical shielding provided by the houses, traffic noise levels at the remaining analyzed receivers do not approach or exceed the NAC.

<u>City of Porterville</u>:

The City of Porterville uses the annual average Day-Night Average Level (DNL) metric for determining land use compatibility with respect to transportation noise sources. Traffic noise

exposure in terms of the DNL was calculated for future conditions with and without the project using the data shown in Table III.

At the closest residential receiver (Villa Robles Apartments), the future DNL was 67.1 dB without the project and 66.2 dB with the project. Both with project and without project DNL levels exceed the City's 60 dB DNL standard for exterior noise exposure in outdoor activity areas. With regard to project-related changes in noise exposure, a decrease of 0.9 dB DNL would occur as a result of the project. This is the result of traffic along Jaye Street being a greater distance away from the receiver under with project conditions.

Construction Noise and Vibration:

During construction of the project, noise from construction activities could potentially impact sensitive uses in the immediate area. Activities associated with construction would generate noise levels at 50 feet as indicated by Table VI. Since the closest critical receivers are located farther from the bridge construction area than 50 feet, noise exposure would be less than indicated by Table VI.

Vibration from construction activities could be detected at the closest sensitive land uses, especially during pile driving activities and movements by heavy equipment or loaded trucks. Typical vibration levels at a reference distance of 25 feet are summarized by Table VII. For comparison purposes, reference vibration levels have been projected for a distance of 150 feet to more closely represent the closest critical receivers, especially with reference to pile driving vibration.

Vibration levels would be below normal thresholds of annoyance for all activities except pile driving. Vibration from pile driving would be perceptible at the closest sensitive receivers, but would be below the 0.2 PPV and 100 VdB thresholds typically applied to prevent structural damage in normal buildings. As noted above, vibration levels resulting from temporary construction, including vehicles entering or leaving a construction site, are exempt from the city's vibration standards as set forth in Section 307.06 of the Development Ordinance.

TABLE VI

TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Maximum Level, dBA (50 Ft.)
Backhoe	78
Concrete Saw	90
Crane	81
Excavator	81
Front End Loader	79
Jackhammer	89
Paver	77
Pneumatic Tools	85
Bulldozer	82

Source: FHWA[5]

TABLE VII

ESTIMATED VIBRATION LEVELS DURING CONSTRUCTION
JAYE STREET BRIDGE

	PPV (in/sec)		RMS Velocity (VdB)	
Equipment	**@ 25´**	**@ 100´**	**@ 25´**	**@ 100´**
Pile Driver (Impact)	0.6-1.5	0.08-0.19	104-112	86-94
Pile Driver (Sonic)	0.2-0.7	0.025-0.088	93-105	70-82
Bulldozer (Large)	0.09	0.011	87	69
Bulldozer (Small)	0.003	0.0004	58	40
Loaded Truck	0.08	0.01	86	68
Jackhammer	0.04	0.005	79	61

Source: *Transit Noise and Vibration Assessment*, FTA-VA-90-1003-06, May 2006

NOISE ABATEMENT ANALYSIS

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Such impacts have been predicted for the first row of residential units within the Villa Robles Apartments south of the Jaye Street bridge. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

All of these abatement options have been considered. However, because of the configuration and location of the project, abatement in the form of noise barriers is the only abatement that is considered to be feasible.

The analyzed noise barrier has been evaluated for feasibility based on achievable noise reduction, and a cost allowance was calculated. Refer to the Protocol for the definition of the critical design receiver (receptor).

For any noise barrier to be considered reasonable from a cost perspective the estimated cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. The cost calculations of the noise barrier should include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining walls. Construction cost estimates are not provided in this NSR, but are presented in the Noise Abatement Decision Report (NADR). The NADR is a design responsibility and is prepared to compile information from the NSR, other relevant environmental studies, and design considerations into a single, comprehensive document before public review of the project. The NADR is prepared by the project engineer after completion of the NSR and prior to publication of the draft environmental document. The NADR includes noise abatement construction cost estimates that have been prepared and signed by the project engineer based on site-specific conditions. Construction cost estimates are compared to reasonableness allowances in the NADR to identify which wall configurations are reasonable from a cost perspective.

The design of the noise barrier presented in this report is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the project. Preliminary information on the physical location, length, and height of noise barriers is provided in this report. If pertinent parameters change substantially during the final project design, preliminary noise barrier designs may be modified or eliminated from the final project. A final decision on the construction of the noise abatement will be made upon completion of the project design.

The traffic noise modeling results in Table V indicate that traffic noise levels at the Villa Robles Apartments along the west side of Jaye Street are predicted to be approximately 67 dBA L_{eq}(h)

for future (2030) conditions, and that future (2030) traffic noise level due to the project will decrease by approximately 1 dB. Because the predicted noise level for future (2030) conditions approaches or exceeds 67 dBA L_{eq}(h), traffic noise impacts are predicted at the residences in this area, and noise abatement must be considered. Detailed modeling analysis was conducted for a barrier located at the edge of the Jaye Street right of way, about 60 feet from the proposed roadway centerline. The barrier evaluated is identified as B-1 in Figure 1. Barrier heights in the range of 6 to 14 feet were evaluated in 1-foot increments. For safety reasons Caltrans *Highway Design Manual* states that noise barriers should not exceed 14 feet in height when located 15 feet or less from the edge of the traveled way. Reasonable allowance calculation sheets for this barrier are provided in Appendix B. Table VII summarizes the results of the barrier analysis for the apartment units.

A barrier height of 8 feet would provide approximately 7 dB reduction for the ground level apartment units, and therefore would meet the required Caltrans design goal. This barrier appears to be feasible, and would reduce traffic noise levels for the seven ground floor apartment units located along the west side Jaye Street. However, the barrier will not provide a significant noise level reduction to the seven upstairs units facing Jaye Street. The preliminary barrier design extends from the access drive just south of the Jaye Street Bridge to intersection of Jaye Street and Springville Avenue. Table VIII indicates that a barrier constructed to the maximum height of 14 feet would only provide a noise level reduction of 4 dB at the upstairs units, and therefore is not considered feasible in regards to the second floor apartment units.

TABLE VIII
ANALYSIS OF BARRIER B-1
VILLA ROBLES APARTMENTS

	Position		Total Number of Benefited Receivers
	Multi-Family Units		
	Receiver 4 (Downstairs)	Receiver 5 (Upstairs)	
Number of Units Represented	7	7	14
Existing Traffic Noise Level (dBA L_{eq}[h])	**66**	**67**	
Future (2030) Project Traffic Noise Level (dBA L_{eq}[h])	**67**	**67**	
Future (2030) with Project minus Existing Traffic Noise Level (dBA L_{eq}[h])	1	0	
6-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	61	**67**	
Predicted Noise Reduction (dB)	6	0	
Number of Benefited Receivers	0	0	0
7-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	60	**67**	
Predicted Noise Reduction (dB)	7	0	
Number of Benefited Receivers	7	0	7
8-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	59	**67**	
Predicted Noise Reduction (dB)	8	0	
Number of Benefited Receivers	7	0	7
9-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	57	**67**	
Predicted Noise Reduction (dB)	10	0	
Number of Benefited Receivers	7	0	7
10-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	56	**67**	
Predicted Noise Reduction (dB)	11	0	
Number of Benefited Receivers	7	0	7
11-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	56	**66**	
Predicted Noise Reduction (dB)	11	1	
Number of Benefited Receivers	7	0	7
12-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	55	65	
Predicted Noise Reduction (dB)	12	2	
Number of Benefited Receivers	7	0	7
13-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	55	65	
Predicted Noise Reduction (dB)	12	2	
Number of Benefited Receivers	7	0	7
14-Foot Barrier			
Design Year with Project Traffic Noise Level (dBA L_{eq}[h])	54	63	
Predicted Noise Reduction (dB)	13	4	
Number of Benefited Receivers	7	0	7

Traffic Noise Levels that approach or exceed the NAC are shown in bold.
Source: Brown-Buntin Associates, Inc.

SOURCES CONSULTED

1. California Department of Transportation, *Traffic Noise Analysis Protocol*, May, 2011.
2. California Department of Transportation, *Technical Noise Supplement*, November, 2009.
3. U.S. Department of Transportation, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.
4. Federal Highway Administration, *Traffic Noise Model, Version 2.5,* April 14, 2004.

APPENDIX A

FUNDAMENTALS OF ACOUSTICS AND TRAFFIC NOISE

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, please refer to Caltrans' Technical Noise Supplement (TeNS) (Caltrans2009), a technical supplement to the Protocol, that is available on Caltrans Web site (http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf).

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-Weighted Sound Pressure Levels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. An "A-weighted" sound pressure level, or sound level, (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B, C, and D networks), but these networks are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 3-1 describes typical A-weighted noise levels for various noise sources.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 1998.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g.,

doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

Equivalent Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and FHWA.

Percentile-Exceeded Sound Level (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.

Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

Community Noise Equivalent Level (CNEL): Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 4.8-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined

path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

APPENDIX B

CALCULATION OF REASONABLE ALLOWANCE

PROJECT: Jaye Street Bridge Widening Project	PROJECT LOCATION: Porterville, CA		Date: 4/12/12
NOISE BARRIER I.D. & LOCATION:	B-1, Villa Robles Apartments		
NOISE ANALYST: W. Van Groningen			
Base Allowance (2011 Dollars)			$55,000
1) Absolute Noise Levels (Choose One)	70 dBA*	Check	
69 dBA or less: 70-74 dBA: 75-78 dBA: More than 78 dBA:	Add $ 2,000 Add $ 4,000 Add $ 6,000 Add $ 8,000	√	$2,000
2) "Build" VS Existing Noise Levels (Choose One)	3 dBA*	Check	
Less than 3 dBA: 3-7 dBA: 8-11 dBA: 12 dBA or more:	Add $ 0 Add $ 2,000 Add $ 4,000 Add $ 6,000	√	
3) Achievable Noise Reduction (Choose One)	5 dBA*	Check	
Less than 6 dBA: 6-8 dBA: 9-11 dBA: 12 dBA or more:	Add $ 0 Add $ 2,000 Add $ 4,000 Add $ 6,000	√	
4) Either New Construction Or Pre-date 1978? (Choose Yes or No)		No	
YES on either one: NO on both:	Add $10,000 Add $ 0	 √	$10,000
Unmodified Reasonable Allowance Per Residence			$57,000
Number of Benefited Residences			7
Total Unmodified Reasonable Allowance			$399,000

* at Critical Design Receiver

Appendix F

Traffic Memorandum

Quad Knopf

MEMO

Date: November 3, 2011 **Project No.:** 080092

To: Randall Bonds - Caltrans

From: Travis Crawford, Senior Environmental Planner

Subject: Jaye Street Bridge Widening Traffic Memorandum

cc: Bradley Dunlap - City of Porterville
Javier Sanchez - City of Porterville

Dear Mr. Bonds:

The purpose of this memorandum is to provide traffic information related to the Jaye Street Bridge Widening Project. The information consists of the following:

1. Project's logical termini and independent utility.
2. Current traffic data (can be as old as 4 years).
3. Traffic data for the year "Open to traffic."
4. Traffic data for 20 years after construction/open to traffic.
5. Percent truck traffic for all conditions.

The traffic information is shown in Attachment A and supporting documentation.

5110 West Cypress Avenue ◆ P.O. Box 3699 ◆ Visalia, California 93278 ◆ Tel (559) 733-0440 ◆ Fax (559) 733-7821
www.quadknopf.com

ATTACHMENT A

JAYE STREET BRIDGE WIDENING
TRAFFIC INFORMATION

Attachment A
Jaye Street Bridge Widening Traffic Information

1. Project's logical termini and independent utility.

The Jaye Street Bridge Widening Project consists of rehabilitating the existing bridge to widen from 2 lanes to 4 lanes over the Tule River and reconstruction of the street approaches. The bridge will include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches will also be widened from 2 lanes to 4 lanes to tie into the existing 4 lane sections of Jaye Street north of the bridge (at Date Avenue) and south of the bridge (Springville Avenue).

Since funding may allow for road improvements on the north and south road approaches, the area of potential affect includes approximately 600 feet-plus on the north and 350 feet-plus on the south approach. The approaches are proposed to be re-aligned and restriped from 2-lanes to 4-lanes to tie into the existing 4-lane roads that currently exist at the Date Avenue intersection to the north and south of the bridge prior to Springville Avenue. Potential improvements to the approaches may include realignment, overlay, restriping, and shoulder work within the existing right-of-way.

The limits of construction are shown on the attached Area of Potential Effect (APE) map (Attachment B).

The Project will not require any future construction once the project is constructed and installed. The Project is not part of a larger project.

2. Current traffic data (can be as old as 4 years).

Average Daily Trips (ADT) was calculated for Jaye Street between Olive Avenue and Springville Avenue as part of the Riverwalk Marketplace II EIR (February 2011). According to the traffic study for the EIR, there is no published ADT information available, however the ADT was determined from detector counts provided by the City of Porterville. (See Attachment C)

Jaye Street (Segment between Olive Ave. and Springville Ave.): ADT = 15,735 (2008)

3. Traffic data for the year "Open to traffic."

The Project is expected to be fully operational by 2014. Year 2014 traffic data for the Project was derived by applying a straight line projection of growth, based on the growth rate projections shown in the City's 2030 General Plan Update.

The 2030 General Plan identifies a 3.8% growth rate during the General Plan planning period. Applying the 3.8% rate to the 2008 counts (above), the 2014 ADT would be

19,680. However, historic growth rate (over the last 15 years) has been at 2.8%. Applying the 2.8% rate to the 2008 counts, the ADT would be 18,570.

These projections are likely inflated due to several factors including the implementation of planned major street improvements in the City (see further explanation in Item 4 below).

4. Traffic data for 20 years after construction/open to traffic.

According to the Riverwalk Marketplace II EIR (February 2011) the segment of Jaye Street between Olive Ave. and Springville Ave. is projected to have a year 2030 ADT of 23,171 (See Attachment C).

It is anticipated that the ADT will not increase at the road segment over the next 20 years as rapidly as when calculated using a straight line growth projection. This is due to several factors, including implementation of several planned major street improvements as well as implementation of General Plan policies designed to reduce traffic impacts. See Attachment D for proposed General Plan traffic volumes and a list of planned street improvements.

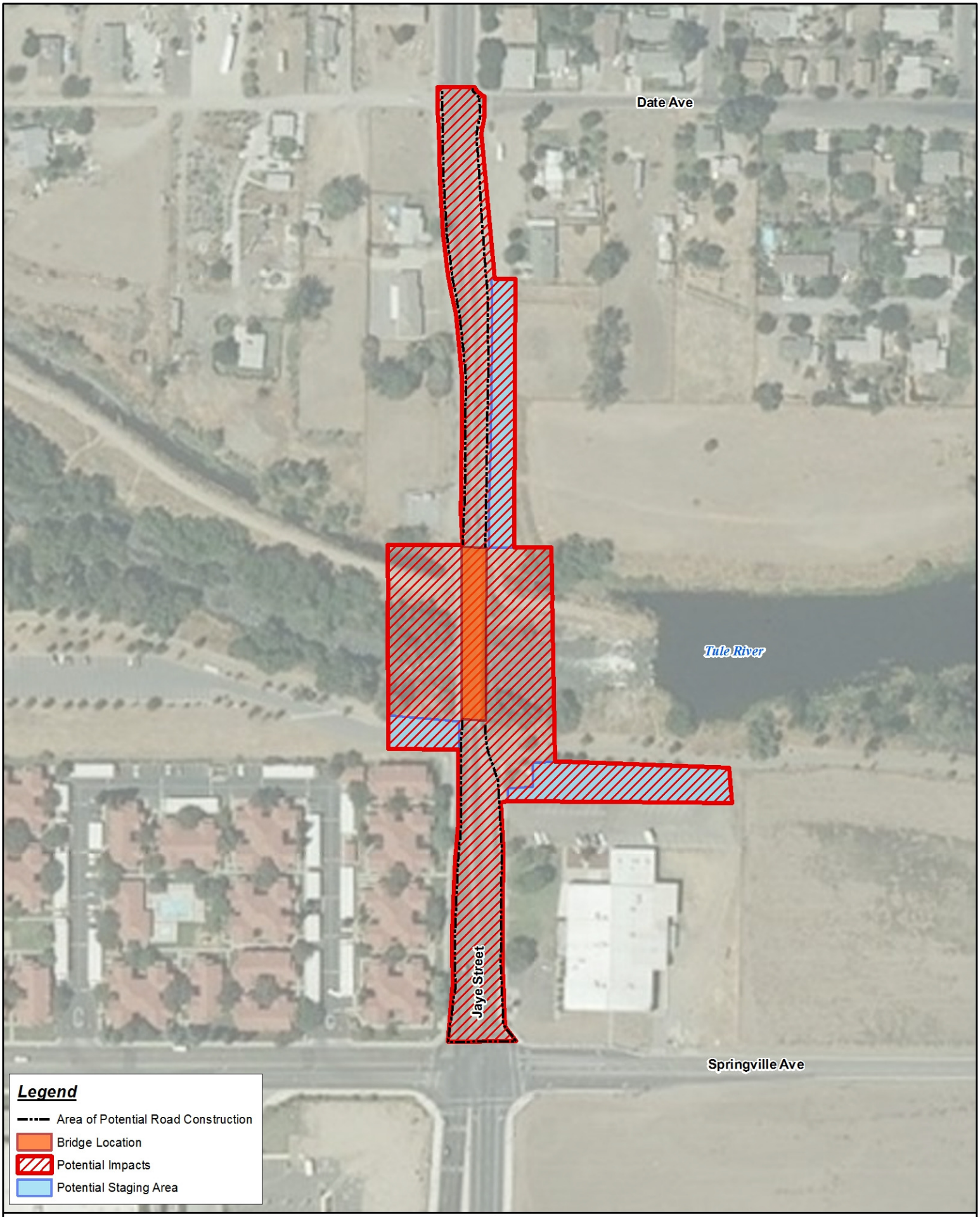
5. Percent truck traffic for all conditions.

Jaye Street is a designated truck route in the City. Truck percentages were estimated based on the Acoustical Analysis prepared for the project (Brown-Buntin April 2012). Traffic counts were conducted on April 2, 2012(Monday) with the following results:

Medium trucks (% AADT) = 2%
Heavy trucks (%AADT) = 1%
Combined = 3%

ATTACHMENT B

APE MAP



Quad Knopf

Federal Project # BRLS-5122 (036)
Jaye Street Bridge Project

0 50 100 200
Feet

ATTACHMENT C

2008 TRAFFIC COUNTS

Table 7
Roadway Capacity

Street	2008[1]	Project ADT	TCAG 2030	2012 ADT	2012+ Project	2030 ADT	2030+ Project	Existing LOS D Capacity	2012 Mitigated LOS D Capacity	2030 Mitigated LOS D Capacity
Springville Ave : Indiana St - Jaye St	5936[2]	1660	5336	6025	7685	4964	6624	27000	-	-
SR 190 : SR 65 - Jaye St	27500[1]	1692	45900	29490	31182	44208	45900	74400	-	-
SR 190 : Jaye St - Plano St	21800[1]	1971	47684	24255	26226	***45713***	***47684***	32500	-	49000
SR 65 : Gibbons Ave - Olive Ave	27000[1]	278	53803	29662	29940	53525	53803	74400	-	-
Indiana St : Olive Ave - Union Ave	3431[3]	0	1362	3483	3483	3829	3829	13500	-	-
Indiana St : Springville Ave - Vandalia Ave	1610[3]	1660	2801	1736	3396	1141	2801	13500	-	-
Jaye St : Olive Ave - Springville Ave	15735[2]	2206	23171	16588	18794	20965	23171	27000	-	-
Jaye St : Springville Ave - SR 190	11101[2]	4873	23171	12273	17146	18298	23171	49000	-	-
Jaye St : SR 190 - Montgomery Ave	10804[2]	1050	15101	11309	12359	14051	15101	32500	-	-
Jaye St : Montgomery Ave - Gibbons Ave	289[3]	793	14843	494	1287	***14050***	***14843***	13500	-	16000

[1]Published ADT data
[2]No published ADT information available, determined from detector counts provided by the City of Porterville
[3]No published ADT information available, volumes were counted in the field

The segment of Jaye Street between Olive Avenue and Springville Avenue narrows to two lanes at the bridge over the Tule River. There is a fully funded and active project by the City of Porterville to widen the bridge. Construction on the bridge is scheduled to begin in 2014, or earlier, depending on the timing of environmental clearance. Additionally, the bridge project is listed on the City of Porterville Traffic Impact Fee facility list.

The segment of Jaye Street between Gibbons Avenue and State Route 190 is currently discontinuous. A project to construct South Jaye Street and make it a continuous roadway is planned to go to bid early 2012 and be under construction during the spring and summer of 2012. The proposed project includes construction of a two lane roadway with a two-way left turn through the length of the project.

ATTACHMENT D

GENERAL PLAN TRAFFIC VOLUMES
AND
PLANNED IMPROVEMENTS

Table 3.13-9: Roadway Level of Service for Proposed General Plan

			No Project		Proposed General Plan	
Street Name	*Location*	*Lanes*	*Daily Volume*	*LOS*	*Daily Volume*	*LOS*
Morton Avenue	SR 65 - Main Street	4	4,470	A	5,250	B
Morton Avenue	Plano Street - Hillcrest Street	2	8,810	C	13,460	C
Henderson Avenue	Westwood Street - Prospect Street	4	15,340	B	18,610	B
Henderson Avenue	Prospect Street - Indiana Street	6	24,750	B	28,110	B
Henderson Avenue	Indiana Street - Main Street	4	16,230	B	19,210	B
Reid Avenue	SR 65 - Plano Street	4	9,910	B	12,520	B
Westwood Street	Scranton Avenue - State Rotue 190	2	9,790	C	1,110	B
Westwood Street	SR 190 - Morton Avenue	4	12,030	B	9,550	B
Westwood Street	Morton Avenue - Westfield Avenue	4	9,720	B	11,080	B
Newcomb Street	Scranton Avenue - State Rotue 190	4	33,470	C	15,940	B
Newcomb Street	SR 190 - Henderson Avenue	4	17,950	B	12,750	B
Prospect Street	Morton Avenue - Westfield Street	4	11,660	B	12,760	B
Indiana Street	SR 190 - Olive Avenue	2	1,350	B	1,520	B
Indiana Street	Olive Avenue - Westfield Street	4	4,970	B	2,930	A
Jaye Stret	Teapot Dome - SR 190	2	7,400	C	9,310	C
Jaye Stret	SR 190 - Olive Avenue	4	23,980	B	21,760	B
Main Street	Gibbons Avenue - SR 190	4	7,360	B	5,890	B
Main Street	SR 190 - Morton Avenue	4	7,560	B	7,390	B
Main Street	Morton Avenue - Westfield Avenue	4	16,220	B	21,680	B
Main Street	Westfield Avenue - Linda Vista Avenue	4	16,570	B	19,620	B
Plano Street	Scranton Avenue - State Rotue 190	4	7,830	B	14,500	B
Plano Street	SR 190 - Morton Avenue	4	18,650	B	21,350	B
Plano Street	Morton Avenue - Reid Avenue	4	9,510	B	14,500	B
Hillcrest Street	Worth Avenue - SR 190	4	1,600	A	4,880	B
Hillcrest Street	SR 190 - Roby Avenue	4	11,200	B	12,680	B
Hillcrest Street	New Road - Avenue 176	2	7,310	B	9,810	C
Road 284	SR 190 - Reservation Road	2	5,540	C	8,480	C

Source: Omni-Means, 2007.

Short-term congestion that may occur during the construction of roadway improvements is not considered significant due to its temporary duration.

Proposed General Plan Policies that Reduce the Impact

In addition to the policies listed above under Impact 3.13-1, the General Plan policies listed below represent a commitment by the City to reduce the impact on the local road system:

Table 3.13-7: Planned Major Street Improvements

Roadway	*Improvement*
Gibbons Ave: Indiana St - Jaye St	Widen to 4-lane Arterial
Henderson Ave: Friant-Kern Canal - Newcomb St	Complete 4-lane Arterial
Henderson Ave: Prospect St - Indiana St	Widen to 6-lane Major Arterial
Hillcrest St: Teapot Dome Ave - Morton Ave	Complete 4-lane Arterial, new bridge
Indiana Ave: Ave 128 – Westfield Ave	Complete 4 lane Arterial, new bridge
Jaye St: Springville Dr - Olive Ave	Complete 4-lane Arterial
Jaye St: SR 190 - Springville Dr	Widen to 6-lane Arterial
Jaye St: Gibbons Ave – SR 190	Widen to 4-lane Arterial
Main St: Henderson Ave - Ave 181	Widen to 4-lane Arterial
Newcomb St: Pioneer Ave - North Grand Ave	Widen to 4-lane Arterial
Newcomb St: Teapot Dome Ave - Olive Ave	Complete 4-lane Arterial, new bridge
North Grand Ave/Reid Ave: SR 65 - Plano St	Widen to 4-lane Arterial
North Grand Ave: Prospect St - SR 65	Widen to 4-lane Arterial
Olive Ave: Friant-Kern Canal - Westwood St	Widen to 4-lane Arterial
Olive Ave: Prospect St - Indiana St	Widen to 6-lane Major Arterial
Plano St: Henderson Ave - Reid Ave	Complete 4-lane Arterial
Plano St: Scranton Ave - SR 190	Widen to 4-lane Arterial
Prospect St: Mulberry Ave - Westfield Ave	Widen to 4-lane Arterial
Scranton Ave: SR 65 - Indiana St	Widen to 4-lane Arterial
Springville Dr: Indiana St - East of Jaye St	Widen to 4-lane Arterial
SR 65: S. City Limits - SR 190	Widen to 4-lane expressway/freeway
Teapot Dome Ave: Newcomb St - S. Main St	Widen to 4-lane Arterial
Westwood St: Henderson Ave - Friant-Kern Canal	Widen to 4-lane Arterial
Westwood St: SR 190 - Olive Ave	Widen to 4-lane Arterial

New Major Roads	
Foothill Parkway: Reid to Road 284	Lake Success Parkway: Hillcrest Parkway to Road 284
Hillcrest Parkway (Extension): Foothill Parkway to Avenue 176	Teapot Dome Parkway (Extension): Hillcrest to Road 284
Mentz Avenue Extension: Newcomb - Hillcrest	

Table 3.13-7: Planned Major Street Improvements

SR 65 Interchange Improvements	*SR 65 Grade Separations*
Avenue 181 (new)	Westfield Ave
Olive Ave (exists)	Morton Ave
Teapot Dome Ave (new)	Scranton Ave
North Grand Ave (new)	
Henderson Ave (exists)	
SR 190 Interchange Improvements	*SR 190 Grade Separations*
Westwood St (new)	Newcomb St
Main St (existing)	Plano St
Hillcrest St (new)	Indiana St
Road 284 (new)	

Source: City of Porterville; Omni-Means, 2007; Dyett and Bhatia, 2007.

SUMMARY OF IMPACTS

Full buildout of the proposed General Plan will have a less than significant impact on the majority of the existing circulation systems. There will be increased congestion on state highways, local arterials and intersections. One small segment of SR 190 between SR 65 and Plano Street may operate at substandard LOS conditions during peak hours. Otherwise, with the implementation of the proposed plan policies and programs, all other roadways will operate at or above LOS standards. Implementation of the General Plan does not result in any changes to the air traffic patterns, increase hazards due to roadway design features, introduce incompatible uses on roadways, or result in inadequate parking supply or emergency access. Full implementation of the proposed General Plan would have beneficial impacts or access to alternative transportation.

IMPACTS AND MITIGATION MEASURES

Impact

3.13-1 ***Implementation of the proposed General Plan would generate increased traffic congestion on State Highways. (Less than Significant)***

Based on the new citywide transportation model, SR 190 between SR 65 and Plano Street will operate below the LOS standards of the Transportation Concept Report (LOS D).

State of California—The Resourc... ...ency
DEPARTMENT OF FISH AND GAME

2012 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT#
TC0706

STATE CLEARING HOUSE # *(If applicable)*
2012061082

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY CITY OF PORTERVILLE	DATE 08/14/2012
COUNTY/ STATE AGENCY OF FILING COUNTY OF TULARE	DOCUMENT NUMBER JSBWP
PROJECT TITLE JAYE STREET BRIDGE WIDENING PROJECT	
PROJECT APPLICANT NAME CITY OF PORTERVILLE	PHONE NUMBER (559) 782-7460

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
291 N MAIN STREET	PORTERVILLE	CA	93257

PROJECT APPLICANT *(Check appropriate box):*

☑ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,919.00	$ 0.00
☑ Negative Declaration (ND)(MND)	$2,101.50	$ 2,101.50
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$ 0.00
☐ Projects Subject to Certified Regulatory Programs	$992.50	$ 0.00
☑ County Administrative Fee	$58.00	$ 58.00
☐ Project that is exempt from fees		
☐ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other _____		$ _____

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other _____ TOTAL RECEIVED $ 2,159.50

SIGNATURE	TITLE
X Karen Melvoan	Deputy

RECEIVED

AUG 15 2012

City of Porterville
Public Works Dept.

ORIGINAL - PROJECT APPLICANT COPY - DFG/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 12/11)

RECEIVED

AUG 15 2012

City of Porterville
Public Works Dept.

Requested by: CITY OF PORTERVILLE

Comments: SASE DFG#TC0706

CLERK-RECORDERS
ROLAND P. HILL, Clerk-Recorder
Operator: RM

Mail to:

CITY OF PORTERVILLE
291 N MAIN ST
PORTERVILLE CA 93257

Clerk-Recorders
Work Order Control Form
Transaction # 2012081400071

Date: 8/14/2012

Time: 9:19:57AM

Product/Item	Quantity	# Pages	Total Pages
NOTICES OF DETERMINATION **CITY OF PORTERVILLE**	1	1	1
Totals for Work Order:	**1**		**1**

ASSESSOR/CLERK-RECORDER
COUNTY OF TULARE
County Civic Center – Room 103
Visalia, California 93291-4593

September 28, 2012

RECEIVED
OCT 1 2012
Community Development Department

CITY OF PORTERVILLE
291 N MAIN ST
PORTERVILLE CA 93257

SUBJECT: POSTING OF ENVIRONMENTAL NOTICES

NOTICE OF: DETERMINATION

RECEIPT #: TC0706

PROJECT TITLE: JAYE STREET BRIDGE WIDENING PROJECT

DATE POSTED: 08/14/2012

DATE REMOVED: 09/23/2012

IF YOU HAVE ANY CONCERNS REGARDING THE ENCLOSED DOCUMENT, PLEASE CONTACT OUR OFFICE 636-5051.

by, _____
Deputy

Enc
Clerk Division
559-636-5051

Notice of Determination

To:

☒ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812

Street Address:
1400 Tenth St, Rm 113
Sacramento, CA 95814

☒ Tulare County Clerk
221 S. Mooney Blvd, Room 105
Visalia, CA 93291

Lead Agency and Applicant:
City of Porterville
291 N. Main Street
Porterville, CA 93257
Contact: Julie Phillips, City Planner
Phone: (559) 782-7460

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resource Code.

State Clearinghouse Number (if submitted to State Clearinghouse) 2012061082

Project Title: Jaye Street Bridge Widening Project

Project Applicant: City of Porterville

Project Location: The project site is in the southern portion of the City of Porterville, within Tulare County, on Jaye Street, approximately 0.30 miles south of Date Ave. & 0.40 miles north of SR 190.

Project Description: The project consists of rehabilitating or replacing the existing Jaye Street Bridge to widen it from two lanes to four lanes over the Tule River and reconstruction of the street approaches. The bridge would include a shared left turn lane and sidewalks on both sides of the bridge. Bridge approaches would also be widened from two lanes to four lanes to tie into the existing four lane sections of Jaye Street north of the bridge to Date Avenue and south of the bridge to Springville Avenue. Potential project improvements also include sidewalk and intersection improvements at the Jaye Street and Date Avenue intersection.

1. The Project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR or Negative Declaration with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
City of Porterville, Planning Division, 291 N. Main Street, Porterville, California.

Julie Phillips for
Signature

8/10/12
Date

Bradley D. Dunlap, Community Development Director
Printed Name and Title

Authority Cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

FILED
TULARE COUNTY
AUG 14 2012
ROLAND P. HILL
ASSESSOR/CLERK RECORDER
BY: RM

Pul 9/25/12