THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS
ACTION AGENDA SUMMARY

DEPT: PUBLIC WORKS

BOARD AGENDA # *C-4

Urgent_____ Routine X

AGENDA DATE MARCH 20, 2001

CEO Concurs with Recommendation YES____ NO____
(Information Attached)

4/5 Vote Required YES____ NO X

SUBJECT: APPROVAL OF A MASTER AGREEMENT FOR PROFESSIONAL SERVICES WITH DOKKEN ENGINEERING, INC. OF RANCHO CORDOVA FOR ENGINEERING DESIGN SERVICES FOR THE SANTA FE AVENUE SEISMIC BRIDGE REPLACEMENT PROJECT.

STAFF RECOMMENDATIONS:

1. APPROVE A MASTER AGREEMENT FOR PROFESSIONAL SERVICES WITH DOKKEN ENGINEERING, INC. OF RANCHO CORDOVA FOR ENGINEERING DESIGN SERVICES FOR THE SANTA FE AVENUE SEISMIC BRIDGE REPLACEMENT PROJECT; AND,

2. AUTHORIZE THE CHAIR TO EXECUTE THE MASTER AGREEMENT WITH DOKKEN ENGINEERING, INC. OF RANCHO CORDOVA, IN THE AMOUNT OF $630,000 FOR ENGINEERING DESIGN SERVICES FOR THE DESIGN AND PREPARATION OF PLANS, SPECIFICATIONS, AND ESTIMATE OF THE SANTA FE AVENUE SEISMIC BRIDGE REPLACEMENT PROJECT.

FISCAL IMPACT: This seismic bridge replacement project is mandated by the State Legislature and is 100% funded by federal and state monies.

BOARD ACTION No. 2001-205

On motion of Supervisor Caruso, **Seconded by Supervisor** Blom,
and approved by the following vote,
Ayes: Supervisors: Mayfield, Blom, Caruso, and Chair Paul
Noes: Supervisors: None
Excused or Absent: Supervisors: Simon
Abstaining: Supervisor: None

1) X Approved as recommended
2) _____ Denied
3) _____ Approved as amended
Motion:

File No.

ATTEST: REAGAN M. WILSON, Clerk By: Deputy

1010-08L

DISCUSSION: The State of California has made an engineering study of the existing Santa Fe Avenue Bridge as to the effects of a significant seismic event. This study determined that the bridge was subject to collapse in a significant seismic event. The study also determined that the cost of strengthening the bridge was a major part of replacing the bridge; and therefore has authorized the County to replace the bridge in the State's Seismic Bridge Replacement program. This project will be 100% funded by State and Federal funds.

POLICY ISSUE: This action is consistent with the Board's policy of providing a safe and healthy community.

STAFFING IMPACT: There is no staffing impacts associated with this action.

JLG:dh

(A:\067DokkenMasAgrBOS.wpd) L:\Bridges\32-067\ADMIN\067DokkenMasAgrBOS.wpd

AUDITOR - CONTROLLER
COPY

AUDITOR-CONTROLLER
BUDGET JOURNAL

Stanislaus County
Striving to be the Best

Budget Organization: **Stanislaus Budget Org**
Budget: **LEGAL BUDGET**
Accounting Period From: Jul-00
To: Jun-01

Department of Public Works
STANISLAUS COUNTY

BATCH SCREEN

Journal Batch: **PW - LW** BO --
Category: **Budget**

Line	Coding Structure							Period Mar-01	Description
	Fund 4	Org 7	Account 5	G/L Proj 7	Loc 6	Misc 6		AMOUNT	
1	1102	40310	63280	0	0	0	.0	(630,000.00)	Decrease Appr
2	1102	40310	27600	0	0	0	.0	(630,000.00)	Decrease Est Rev
3	1102	40310	63280	9254	0	0	.0	630,000.00	Increase Appr
4	1102	40310	27600	9254	0	0	.0	630,000.00	Increase Est Rev
5							.0		
6							.0		
7							.0		
8							.0		
9							.0		
10							.0		
11							.0		
12							.0		
13							.0		
14							.0		
15							.0		
16							.0		
17							.0		
18							.0		
19							.0		
20							.0		
21							.0		
22							.0		
23							.0		
24							.0		
25							.0		
						Totals			

Explanation:
Transfer Est Rev and Appr from non project to Santa Fe Ave Seismic Bridge Replacement

Requesting Department	CEO	Auditors Office Only	
Larry E. Wendel			
Signature	Signature	Approved By	Admin Approval ($75K+)
14-Mar-01		3/14/01	
Date	Date	Date	Date

MASTER AGREEMENT FOR PROFESSIONAL SERVICES

This Master Agreement For Professional Services is made and entered into by and between the County of Stanislaus ("County") and Dokken Engineering, a California corporation ("Consultant"), on March 20, 2001 (the "Agreement").

INTRODUCTION

WHEREAS, the County has a need for professional services involving numerous and different tasks and projects; and

WHEREAS, the Consultant is specially trained, experienced and competent to perform and has agreed to provide such services; and

WHEREAS, the County and the Consultant wish to execute one agreement that shall govern all professional services provided by the Consultant during the term of this Agreement;

NOW, THEREFORE, in consideration of the mutual promises, covenants, terms and conditions hereinafter contained, the parties hereby agree as follows:

TERMS AND CONDITIONS

1. SCOPE OF WORK

1.1 The Consultant shall furnish to the County upon receipt of the County's written authorization to proceed, those services and work set forth in a separately approved scope of work for each project or task being provided by the Consultant, which scope of work, by this reference, is made a part hereof. Each project added to and to be performed under this Agreement shall be separately approved by the parties. Each project where the cost of services does not exceed $100,000 shall be approved by purchase order issued by the County Purchasing Agent or designee; projects greater than $100,000 shall be approved by resolution of the Board of Supervisors for the County.

1.2 All documents, drawings and written work product prepared or produced by the Consultant under this Agreement, including without limitation electronic data files, are the property of the Consultant; provided, however, the County shall have the right to reproduce, publish and use all such work, or any part thereof, in any manner

and for any purposes whatsoever and to authorize others to do so. If any such work is copyrightable, the Consultant may copyright the same, except that, as to any work which is copyrighted by the Consultant, the County reserves a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, and use such work, or any part thereof, and to authorize others to do so.

1.3 Services and work provided by the Consultant under this Agreement will be performed in a timely manner in accordance with a schedule of work set forth in the scope of work for each separately approved project. If there is no schedule, the hours and times for completion of said services and work are to be set by the Consultant; provided, however, that such schedule is subject to review by and concurrence of the County.

1.4 The Consultant shall provide services and work under this Agreement consistent with the requirements and standards established by applicable federal, state and County laws, ordinances, regulations and resolutions. The Consultant represents and warrants that it will perform its work in accordance with generally accepted industry standards and practices for the profession or professions that are used in performance of this Agreement and that are in effect at the time of performance of this Agreement. Except for that representation and any representations made or contained in any proposal submitted by the Consultant and any reports or opinions prepared or issued as part of the work performed by the Consultant under this Agreement, Consultant makes no other warranties, either express or implied, as part of this Agreement.

1.5 If the Consultant deems it appropriate to employ a consultant, expert or investigator in connection with the performance of the services under this Agreement, the Consultant will so advise the County and seek the County's prior approval of such employment. Any consultant, expert or investigator employed by the Consultant will be the agent of the Consultant not the County.

2. CONSIDERATION

2.1 Unless otherwise provided in an approved scope of work for a project, the Consultant shall be compensated on a time and materials basis not to exceed a specified amount as provided in each project and scope of work approved by the parties.

2.2 Except as expressly provided in this Agreement or in an approved Scope of work, Consultant shall not be entitled to nor receive from County any additional consideration, compensation, salary, wages or other type of remuneration for services rendered under this Agreement, including, but not limited to, meals, lodging, transportation, drawings, renderings or mockups. Specifically, Consultant shall not be entitled by virtue of this Agreement to consideration in the form of overtime, health insurance benefits, retirement benefits, disability retirement benefits, sick leave, vacation time, paid holidays or other paid leaves of absence of any type or kind whatsoever.

2.3 Unless otherwise provided in a scope of work approved by the parties, the Consultant shall provide the County with a monthly or a quarterly statement, as services warrant, of fees earned and costs incurred for services provided during the billing period, which the County shall pay in full within 30 days of the date each invoice is approved by the County. A separate statement shall be provided for each Scope of work approved by the parties. The statement will generally describe the services performed, the applicable rate or rates, the basis for the calculation of fees, and a reasonable itemization of costs. All invoices for services provided shall be forwarded in the same manner and to the same person and address that is provided for service of notices herein.

2.4 County will not withhold any Federal or State income taxes or Social Security tax from any payments made by County to Consultant under the terms and conditions of this Agreement. Payment of all taxes and other assessments on such sums is the sole responsibility of Consultant. County has no responsibility or liability for payment of Consultant's taxes or assessments.

3. TERM

3.1 The term of this Agreement shall be from the date of this Agreement until terminated as provided below. The term for each separately approved project or scope of work shall begin on the date of approval until completion of the agreed upon services, or as otherwise specified in the approved scope of work.

3.2 Should either party default in the performance of this Agreement or materially breach any of its provisions, the other party, at that party's option, may terminate this Agreement by giving written notification to the other party.

3.3 Payment for performance by the Consultant shall be dependent upon the availability of appropriations by the County Board of Supervisors for the purposes of this contract. No legal liability on the part of the County for any payment may arise under this agreement until funds are made available and until the Consultant has received funding availability, which will be confirmed in writing. If funding for any fiscal year is reduced or deleted, or if the County loses funding for any reason, the County, in its sole discretion, shall have the option to either: (a) cause this Agreement to be canceled or terminated pursuant to applicable provisions of the Agreement; or (b) offer to amend the Agreement to reflect the reduced funding for this Agreement.

3.4 The County may terminate this Agreement, or any Scope of Service approved by the parties and made part of this Agreement, upon 30 days prior written notice. Termination of this Agreement shall not affect the County's obligation to pay for all fees earned and reasonable costs necessarily incurred by the Consultant as provided in Paragraph 2 herein, subject to any applicable setoffs.

3.5 This Agreement shall terminate automatically on the occurrence of (a) bankruptcy or insolvency of either party, or (b) sale of Consultant's business.

4. REQUIRED LICENSES, CERTIFICATES AND PERMITS

Any licenses, certificates or permits required by the federal, state, county or municipal governments for Consultant to provide the services and work described in Exhibit A must be procured by Consultant and be valid at the time Consultant enters into this Agreement. Further, during the term of this Agreement, Consultant must maintain such licenses, certificates and permits in full force and effect. Licenses, certificates and permits may include but are not limited to driver's licenses, professional licenses or certificates and business licenses. Such licenses, certificates and permits will be procured and maintained in force by Consultant at no expense to the County.

5. OFFICE SPACE, SUPPLIES, EQUIPMENT, ETC.

Unless otherwise provided in this Agreement or in separately approved project or scope of work, Consultant shall provide such office space, supplies, equipment, vehicles, reference materials and telephone service as is necessary for Consultant to provide the services under this Agreement. The Consultant--not the County--has the sole responsibility for payment of the costs and expenses incurred by Consultant in providing and maintaining such items.

6. INSURANCE

6.1 Consultant shall take out, and maintain during the life of this Agreement, insurance policies with coverage at least as broad as follows:

6.1.1 General Liability. Comprehensive general liability insurance covering bodily injury, personal injury, property damage, products and completed operations with limits of no less than One Million Dollars ($1,000,000) per incident or occurrence. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to any act or omission by Consultant under this Agreement or the general aggregate limit shall be twice the required occurrence limit.

6.1.2 Professional Liability Insurance. Professional errors and omissions (malpractice) liability insurance with limits of no less than One Million Dollars ($1,000,000) aggregate. Such professional liability insurance shall be continued for a period of no less than one year following completion of the Consultant's work under this Agreement.

6.1.3 Automobile Liability Insurance. If the Consultant or the Consultant's officers, employees, agents, representatives or subcontractors utilize a motor vehicle in performing any of the work or services under this Agreement, owned/non-owned automobile liability insurance providing combined single limits covering bodily injury, property damage and transportation related pollution liability with limits of no less than One Million Dollars ($1,000,000) per incident or occurrence.

6.1.4 Workers' Compensation Insurance. Workers' Compensation insurance as required by the California Labor Code. In signing this contract, the Consultant certifies under section 1861 of the Labor Code that the Consultant is aware of the provisions of section 3700 of the Labor Code which requires every employer to be insured against liability for workmen's compensation or to undertake self-insurance in accordance with the provisions of that code, and that the Consultant will comply with such provisions before commencing the performance of the work of this Agreement.

6.2 Any deductibles, self-insured retentions or named insureds must be declared in writing and approved by County. At the option of the County, either: (a) the insurer shall reduce or eliminate such deductibles, self-insured retentions or named insureds, or (b) the Consultant shall provide a bond, cash, letter of credit, guaranty or other security satisfactory to the County guaranteeing payment of the self-insured retention or deductible and payment of any and all costs, losses, related investigations, claim administration and defense expenses. The County, in its sole discretion, may waive the requirement to reduce or eliminate deductibles or self-insured retentions, in which case, the Consultant agrees that it will be responsible for and pay any self-insured retention or deductible and will pay any and all costs, losses, related investigations, claim administration and defense expenses related to or arising out of the Consultant's defense and indemnification obligations as set forth in this Agreement.

6.3 The Consultant shall obtain a specific endorsement to all required insurance policies, except Workers' Compensation insurance and Professional Liability insurance, naming the County and its officers, officials and employees as additional insureds regarding: (a) liability arising from or in connection with the performance or omission to perform any term or condition of this Agreement by or on behalf of the Consultant, including the insured's general supervision of the Consultant; (b) services, products and completed operations of the Consultant; (c) premises owned, occupied or used by the Consultant; and (d) automobiles owned, leased, hired or borrowed by the Consultant. For Workers' Compensation insurance, the insurance carrier shall agree to waive all rights of subrogation against the County its officers, officials and employees for losses arising from the performance of or the omission to perform any term or condition of this Agreement by the Consultant.

6.4 The Consultant's insurance coverage shall be primary insurance regarding the County and County's officers, officials and employees. Any insurance or self-insurance maintained by the County or County's officers, officials and employees shall be excess of the Consultant's insurance and shall not contribute with Consultant's insurance.

6.5 Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the County or its officers, officials and employees.

6.6 The Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's

liability.

6.7 Each insurance policy required by this section shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party except after thirty (30) days' prior written notice has been given to County. The Consultant shall promptly notify, or cause the insurance carrier to promptly notify, the County of any change in the insurance policy or policies required under this Agreement, including, without limitation, any reduction in coverage or in limits of the required policy or policies.

6.8 Insurance shall be placed with California admitted insurers (licensed to do business in California) with a current rating by Best's Key Rating Guide of no less than A-:VII; provided, however, that if no California admitted insurance company provides the required insurance, it is acceptable to provide the required insurance through a United States domiciled carrier that meets the required Best's rating and that is listed on the current List of Eligible Surplus Line Insurers maintained by the California Department of Insurance.

6.9 Consultant shall require that all of its subcontractors are subject to the insurance and indemnity requirements stated herein, or shall include all subcontractors as additional insureds under its insurance policies.

6.10 At least ten (10) days prior to the date the Contractor begins performance of its obligations under this Agreement, Contractor shall furnish County with certificates of insurance, and with original endorsements, showing coverage required by this Agreement, including, without limitation, those that verify coverage for subcontractors of the Contractor. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements shall be received and, in County's sole and absolute discretion, approved by County. County reserves the right to require complete copies of all required insurance policies and endorsements, at any time.

6.11 The limits of insurance described herein shall not limit the liability of the Consultant and Consultant's officers, employees, agents, representatives or subcontractors.

7. DEFENSE AND INDEMNIFICATION

7.1 To the fullest extent permitted by law, Consultant shall indemnify, hold harmless and defend the County and its agents, officers and employees from and against all claims, damages, losses, judgments, liabilities, expenses and other costs, including litigation costs and attorneys' fees, arising out of, resulting from, or in connection with the performance of this Agreement by the Consultant or Consultant's officers, employees, agents, representatives or subcontractors and resulting in or attributable to personal injury, death, or damage or destruction to tangible or intangible property, including the loss of use. Notwithstanding the foregoing, Consultant's obligation to indemnify the County and its agents, officers and employees for any judgment, decree or arbitration award shall extend only to the percentage of negligence

or responsibility of the Consultant in contributing to such claim, damage, loss and expense.

7.2 Consultant's obligation to defend, indemnify and hold the County and its agents, officers and employees harmless under the provisions of this paragraph is not limited to or restricted by any requirement in this Agreement for Consultant to procure and maintain a policy of insurance.

7.3 To the fullest extent permitted by law, the County shall indemnify, hold harmless and defend the Consultant and its officers, employees, agents, representatives or subcontractors from and against all claims, damages, losses, judgments, liabilities, expenses and other costs, including litigation costs and attorney's fees, arising out of or resulting from the negligence or wrongful acts of County and its officers or employees.

7.4 Subject to the limitations in 42 United States Code section 9607 (e), and unless otherwise provided in a Scope of work approved by the parties:

(a) Consultant shall not be responsible for liability caused by the presence or release of hazardous substances or contaminants at the site, unless the release results from the negligence of Consultant or its subcontractors;

(b) No provision of this Agreement shall be interpreted to permit or obligate Consultant to assume the status of "generator," "owner," "operator," "arranger," or "transporter" under state or federal law; and

(c) At no time, shall title to hazardous substances, solid wastes, petroleum contaminated soils or other regulated substances pass to Consultant.

8. STATUS OF CONSULTANT

8.1 All acts of Consultant and its officers, employees, agents, representatives, subcontractors and all others acting on behalf of Consultant relating to the performance of this Agreement, shall be performed as independent contractors and not as agents, officers or employees of County. Consultant, by virtue of this Agreement, has no authority to bind or incur any obligation on behalf of County. Except as expressly provided in Exhibit A, Consultant has no authority or responsibility to exercise any rights or power vested in the County. No agent, officer or employee of the County is to be considered an employee of Consultant. It is understood by both Consultant and County that this Agreement shall not be construed or considered under any circumstances to create an employer-employee relationship or a joint venture.

8.2 At all times during the term of this Agreement, the Consultant and its officers, employees, agents, representatives or subcontractors are, and shall represent and conduct themselves as, independent contractors and not employees of County.

8.3 Consultant shall determine the method, details and means of performing

the work and services to be provided by Consultant under this Agreement. Consultant shall be responsible to County only for the requirements and results specified in this Agreement and, except as expressly provided in this Agreement, shall not be subjected to County's control with respect to the physical action or activities of Consultant in fulfillment of this Agreement. Consultant has control over the manner and means of performing the services under this Agreement. If necessary, Consultant has the responsibility for employing other persons or firms to assist Consultant in fulfilling the terms and obligations under this Agreement.

8.4 Consultant is permitted to provide services to others during the same period service is provided to County under this Agreement; provided, however, such services do not conflict directly or indirectly with the performance of the Consultant's obligations under this Agreement.

8.5 If in the performance of this Agreement any third persons are employed by Consultant, such persons shall be entirely and exclusively under the direction, supervision and control of Consultant. All terms of employment including hours, wages, working conditions, discipline, hiring and discharging or any other term of employment or requirements of law shall be determined by the Consultant.

8.6 It is understood and agreed that as an independent contractor and not an employee of County, the Consultant and the Consultant's officers, employees, agents, representatives or subcontractors do not have any entitlement as a County employee, and, except as expressly provided for in any Scope of work made a part hereof, do not have the right to act on behalf of the County in any capacity whatsoever as an agent, or to bind the County to any obligation whatsoever.

8.7 It is further understood and agreed that Consultant must issue W-2 forms or other forms as required by law for income and employment tax purposes for all of Consultant's assigned personnel under the terms and conditions of this Agreement.

8.8 As an independent contractor, Consultant hereby indemnifies and holds County harmless from any and all claims that may be made against County based upon any contention by any third party that an employer-employee relationship exists by reason of this Agreement.

9. RECORDS AND AUDIT

9.1 Consultant shall prepare and maintain all writings, documents and records prepared or compiled in connection with the performance of this Agreement for a minimum of four (4) years from the termination or completion of separately approved project or scope of work. This includes any handwriting, typewriting, printing, photostatic, photographing and every other means of recording upon any tangible thing, any form of communication or representation including letters, words, pictures, sounds or symbols or any combination thereof.

9.2 Any authorized representative of County shall have access to any writings

as defined above for the purposes of making audit, evaluation, examination, excerpts and transcripts during the period such records are to be maintained by Consultant. Further, County has the right at all reasonable times to audit, inspect or otherwise evaluate the work performed or being performed under this Agreement.

10. CONFIDENTIALITY

The Consultant agrees to keep confidential all information obtained or learned during the course of furnishing services under this Agreement and to not disclose or reveal such information for any purpose not directly connected with the matter for which services are provided.

11. NONDISCRIMINATION

During the performance of this Agreement, Consultant and its officers, employees, agents, representatives or subcontractors shall not unlawfully discriminate in violation of any federal, state or local law, rule or regulation against any employee, applicant for employment or person receiving services under this Agreement because of race, religion, color, national origin, ancestry, physical or mental handicap, medical condition (including genetic characteristics), marital status, age, political affiliation or sex. Consultant and its officers, employees, agents, representatives or subcontractors shall comply with all applicable Federal, State and local laws and regulations related to non-discrimination and equal opportunity, including without limitation the County's nondiscrimination policy; the Fair Employment and Housing Act (Government Code sections 12900 et seq.); California Labor Code sections 1101, 1102 and 1102.1; the Federal Civil Rights Act of 1964 (P.L. 88-352), as amended; and all applicable regulations promulgated in the California Code of Regulations or the Code of Federal Regulations.

12. ASSIGNMENT

This is an agreement for the services of Consultant. County has relied upon the skills, knowledge, experience and training of Consultant and the Consultant's firm, associates and employees as an inducement to enter into this Agreement. Consultant shall not assign or subcontract this Agreement without the express written consent of County; provided, however, the work under this Agreement may be completed by a wholly owned subsidiary of the Consultant. Further, Consultant shall not assign any monies due or to become due under this Agreement without the prior written consent of County.

13. NOTICE

Any notice, communication, amendment, addition or deletion to this Agreement, including change of address of either party during the term of this Agreement, which Consultant or County shall be required or may desire to make shall be in writing and may be personally served or, alternatively, sent by prepaid first class mail to the respective parties as follows:

To County: County of Stanislaus
Department of Public Works
Attention: James L. Gregg
1010 Tenth Street, Suite 3500
Modesto, CA 95354

To Consultant: Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, CA 95670

14. WAIVER OF DEFAULT

Waiver of any default by either party to this Agreement shall not be deemed to be waiver of any subsequent default. Waiver or breach of any provision of this Agreement shall not be deemed to be a waiver of any other or subsequent breach, and shall not be construed to be a modification of the terms of this Agreement unless this Agreement is modified as provided below.

15. CONFLICTS

Consultant agrees that it has no interest and shall not acquire any interest direct or indirect which would conflict in any manner or degree with the performance of the work and services under this Agreement.

16. SEVERABILITY

If any portion of this Agreement or application thereof to any person or circumstance shall be declared invalid by a court of competent jurisdiction or if it is found in contravention of any federal, state or county statute, ordinance or regulation the remaining provisions of this Agreement or the application thereof shall not be invalidated thereby and shall remain in full force and effect to the extent that the provisions of this Agreement are severable.

17. AMENDMENT

This Agreement may be modified, amended, changed, added to or subtracted from by the mutual consent of the parties hereto if such amendment or change is in written form and executed with the same formalities as this Agreement and attached to the original Agreement to maintain continuity.

18. ENTIRE AGREEMENT

This Agreement supersedes any and all other agreements, either oral or in writing, between any of the parties herein with respect to the subject matter hereof and contains all the agreements between the parties with respect to such matter. Each party acknowledges that no representations, inducements, promises or agreements, oral or otherwise, have been made by any party, or anyone acting on behalf of any

party, which are not embodied herein, and that no other agreement, statement or promise not contained in this Agreement shall be valid or binding.

19. ADVICE OF ATTORNEY

Each party warrants and represents that in executing this Agreement, it has received independent legal advice from its attorneys or the opportunity to seek such advice.

20. CONSTRUCTION

Headings or captions to the provisions of this Agreement are solely for the convenience of the parties, are not part of this Agreement, and shall not be used to interpret or determine the validity of this Agreement. Any ambiguity in this Agreement shall not be construed against the drafter, but rather the terms and provisions hereof shall be given a reasonable interpretation as if both parties had in fact drafted this Agreement.

21. GOVERNING LAW AND VENUE

This Agreement shall be deemed to be made under, and shall be governed by and construed in accordance with, the laws of the State of California. Any action brought to enforce the terms or provisions of this Agreement shall have venue in the County of Stanislaus, State of California.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first hereinabove written.

COUNTY OF STANISLAUS

By: _____
Pat Paul
Chair of the Board of Supervisors

"County"

ATTEST: CHRISTINE FERRARO TALLMAN
Clerk of the Board of Supervisors of the
County of Stanislaus, State of California

By: _____
Deputy Clerk

DOKKEN ENGINEERING

By: _____
Richard A. Dokken, P.E.
President

"Consultant

Taxpayer Identification No. 68-0099664

APPROVED AS TO CONTENT:
George Stillman, Director
Department of Public Works

By:_____
James L. Gregg
Supervising Civil Engineer

APPROVED AS TO FORM:
Michael H. Krausnick
County Counsel

By:_____
John P. Doering
Deputy County Counsel

C:\My Documents\068Dokken Master AgmtB121.wpd

DOKKEN ENGINEERING, INC.
PROJECT NO. 2001-01

A. TERMS AND CONDITIONS

Except as hereinafter provided, the services provided by the Consultant under this Project shall be subject to the terms and conditions set forth in the *Master Agreement For Professional Services* made and entered into by and between the COUNTY OF STANISLAUS ("County") and DOKKEN ENGINEERING, INC., A CALIFORNIA CORPORATION, ("Consultant"), on March 20, 2001.

B. SCOPE OF WORK

The Consultant shall provide services under this Agreement for completion of the Plans, Specifications and Engineer's Estimate for the **SANTA FE AVENUE BRIDGE AT TUOLUMNE RIVER PROJECT** in accordance with its Proposal dated June 21, 2000, attached hereto and, by reference, made a part hereof. The Plans, Specifications, and Engineer's Estimate shall detail the construction of a new replacement bridge with approach roadways to the existing Santa Fe Avenue Road and the removal of the existing bridge. The Consultant shall prepare the Plans Specifications and Engineer's Estimate in accordance with the current edition of the State of California, Department of Transportation, Design and Local Programs, Office of Local Program's, "Local Assistance Procedures Manual," Processing Procedures for Implementing Federal and/or State Funded Local Public Transportation Projects.

C. COMPENSATION

The Consultant shall be compensated for the services provided under this Agreement as follows:

1. Consultant will be compensated on a time and materials basis, based on the hours worked by the Consultant's employees or subcontractors at the hourly rates specified in the consultant's Proposal. The specified hourly rates shall include direct salary costs, employee benefits, and overhead. These rates are not adjustable for the performance period set forth in this Agreement. In addition to the aforementioned fees, Consultant will be reimbursed for the following items, plus any expenses agreed by the parties as set forth in the Consultant's Proposal attached hereto, that are reasonable, necessary and actually incurred by the Consultant in connection with the services:

   (a) Any filing fees, permit fees, or other fees paid or advanced by the Consultant.

   (b) Expenses, fees or charges for printing, reproduction or binding of documents at actual costs.

2. The parties hereto acknowledge the maximum amount to be paid by the County for services provided shall not exceed $625,000.00, including, without limitation, the cost of any subcontractors, consultants, experts or investigators retained by the Consultant to perform or to assist in the performance of its work under this Agreement.

D. FEDERAL OR STATE PROJECTS

The following provisions shall apply to projects funded entirely or in part by the State or federal government, and the Consultant agrees to perform services under this Agreement in accordance with such provisions, which shall take precedence over any different or inconsistent provisions of this Agreement.

1. Allowable cost items shall be determined in accordance with the Contract Cost Principals and Procedures (48 CFR Chapter 1, Part 31) and shall comply the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (49 CFR Part 18) (collectively referred to hereafter as the "Regulations").

2. The Consultant shall comply with all requirements and procedures set forth in the Regulations.

3. Any costs for which payments have been made to the Consultant, which are determined by subsequent audit to be unallowable under the Regulations, shall be promptly repaid to the County after demand.

4. Any subcontract entered into by the Consultant for performance of the Consultant's obligations under this Agreement, shall be subject to all of the provisions of this Agreement, and shall incorporate by reference all of the terms and conditions of this Agreement, and shall contain all of the provisions for State or federally funded projects set forth in Section C herein.

5. The Consultant shall perform the work under this Agreement with resources available within its own organization and no portion of the work pertinent to this Agreement shall be subcontracted without the prior written consent or approval by the State's or the County's Contract Manager, except that which is expressly identified in the Consultant's proposal. Any substitution of subcontractors must be approved in writing by the State's or the County's Contract Manager.

6. Representatives of the State and FHWA shall have access to review all project records and documents for the purposes of making audit, evaluation, examination, excerpts and transcripts during the the period such records are maintained by the Consultant.

/ / /

/ / /

IN WITNESS WHEREOF, the parties have executed this Project No. 2001-01 on March 20, 2001.

COUNTY OF STANISLAUS

By: _____
PAT PAUL, Chair of the
Board of Supervisors

"County"

ATTEST: CHRISTINE FERRARO TALLMAN
Clerk of the Board of Supervisors of the
County of Stanislaus, State of California

By: _____
Deputy Clerk

APPROVED AS TO CONTENT:
George Stillman, Director
Department of Public Works

By: _____
James L. Gregg
Supervising Civil Engineer

APPROVED AS TO FORM:
Michael H. Krausnick
County Counsel

By: _____
John P. Doering
Deputy County Counsel

DOKKEN ENGINEERING, INC.

By: _____
Richard Dokken
President

"Consultant"

Taxpayer Identification No. 68-0099664

CONSULTANT COST PROPOSAL

Santa Fe Avenue Bridge - at Tuolumne River

Date: June 28, 2000

CONSULTANT: DOKKEN ENGINEERING

DIRECT LABOR

	Name	Range	Hours		Initial Hourly Rate	Total
Principal In Charge	Dokken, Richard	Principal	120	@	$54.00	$6,480.00
Project Manager	Maechler, Martin	Project Manager	580	@	$36.00	$20,880.00
Highway Engineer	Cote, Dennis	Associate	48	@	$35.00	$1,680.00
Highway Engineer	Voo, Anthony	Associate	620	@	$34.00	$21,080.00
Highway Engineer	Miller, Raymond	Associate	104	@	$34.00	$3,536.00
Bridge Engineer	Liptak, Richard	Senior	60	@	$45.50	$2,730.00
Bridge Engineer	Vandershaf, David	Project Engineer	700	@	$43.50	$30,450.00
Bridge Engineer	Hamzawi, Hashim	Associate	280	@	$35.00	$9,800.00
CAD/Technical	Houghton, Craig	CAD Manager	251	@	$32.50	$8,157.50
CAD/Technical	Dang, Khanh	CAD	574	@	$27.00	$15,498.00
CAD/Technical	Nostratis, Fredilito	CAD	364	@	$24.50	$8,918.00
Admin/Clerical	Del Buono, Alana	Admin	60	@	$25.00	$1,500.00
Admin/Clerical	Chan, Cathy	Admin	67	@	$27.00	$1,809.00
			3828			

Subtotal Direct Labor Costs	$132,518.50	
*Anticipated Salary Increases	$2,268.04	
Total Direct Labor Costs		$134,786.54

FRINGE BENEFITS	Rate	Total	
Fringe Benefits	21.57%	$29,073.46	
Total Fringe Benefits			$29,073.46

INDIRECT COSTS			
Overhead	7.82%	$10,540.31	
General and Administrative	126.71%	$170,788.02	
Total Indirect Costs			$181,328.33

OTHER COSTS		
Travel Costs	$1,968.00	
Shipping	$160.00	
Other Direct Costs Reproduction	$2,200.00	
Total Other Costs		$4,328.00

FEE	$34,518.83
SUBCONTRACTOR COSTS	$240,747.55

TABER CONSULTANTS	$ 19,980.33
CCS	$ 53,514.82
WRECO	$ 16,423.64
LSA	$ 56,818.16
CUTLER	$ 22,507.86
THOMPSON HYSELL	$ 71,502.73

TOTAL COST	$624,782.71

*Rates will be adjusted by 2% Annually

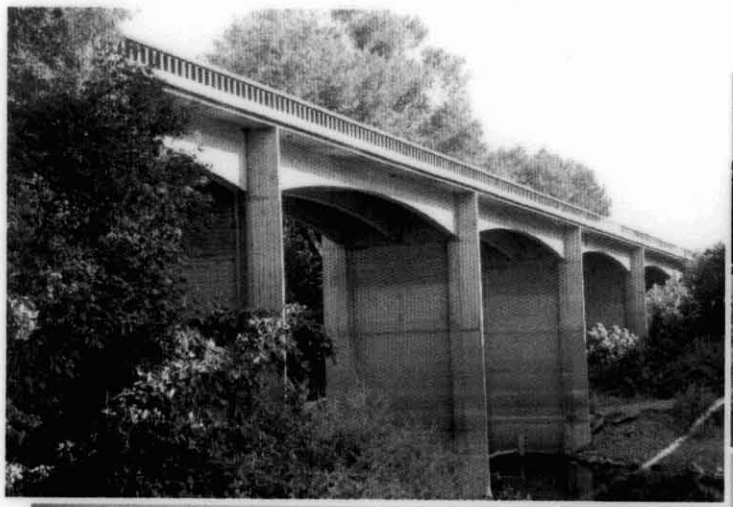
14 Feb 01

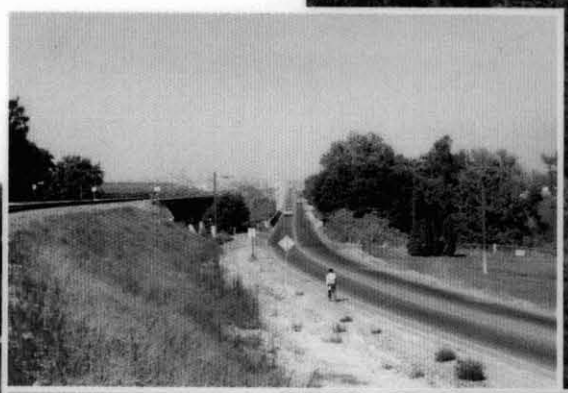
Proposal for
Bridge Replacement Design Services for the:

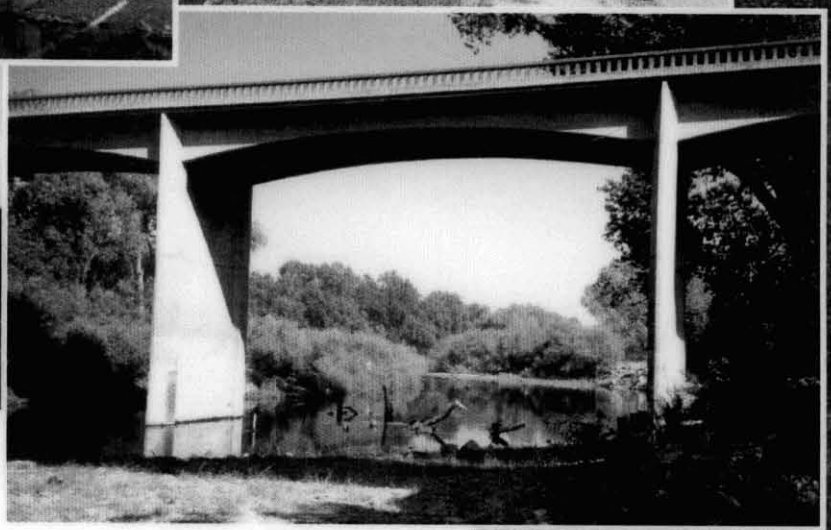
Santa Fe Avenue Bridge at Tuolumne River

Bridge Number 38C-0003

June 21, 2000







DOKKEN ENGINEERING
www.dokkenengineering.com

Submitted to:

Stanislaus County
Department of Public Works
1716 Morgan Road
Modesto, CA 95358

Attn: James L. Gregg,
Supervising Civil Engineer

Submitted by:

Richard A. Dokken, P.E.
Principal-in-Charge
Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, CA 95670

Telephone: (916) 858-0642

DOKKEN
ENGINEERING

June 21, 2000

Stanislaus County
Department of Public Works
1716 Morgan Road
Modesto, CA 95358

Attn: Mr. James L. Gregg, P.E.

RE: Proposal for the Santa Fe Avenue Bridge at Tuolumne River Replacement Project

Dear Mr. Gregg:

We are pleased to submit three (3) copies of our proposal for preparing plans, specifications and estimates for the Santa Fe Avenue Bridge at Tuolumne River Replacement Project in Stanislaus County. We developed the Seismic Retrofit Strategy for this bridge and are prepared to continue working on this project immediately. We believe this proposal will confirm that Dokken Engineering has the engineering and management talent, staff capability, and project specific knowledge to successfully deliver Stanislaus County the reference project. Dokken Engineering has successfully provided local agencies and Caltrans similar services on past projects including construction inspection services.

Dokken Engineering is a California Corporation specializing in providing consulting engineering services for bridges, rail transit, highways, local roads, and other transportation infrastructure facilities. Dokken Engineering provides expertise in Project Planning and Development, Design PS&E, and Construction Management and Inspection Services. Since its formation in 1986, Dokken Engineering has completed engineering services for more than 600 highway, local road and bridge projects in California, including more than 100 federally funded roadway and bridge replacement projects.

Mr. Richard Dokken, P.E. will be the Principal-in-Charge. Mr. Dokken has 40 years experience in design, construction and management of engineering projects. As President of Dokken Engineering, he commands the resources to ensure Stanislaus County projects are delivered on time and on budget.

Mr. John Maniscalco, S.E. will be the Project Manager. He has extensive experience as a project manager and has successfully completed many similar projects. He is currently managing bridge projects that include the $23 million 9th Street Bridge Replacement over the Tuolumne River for the City of Modesto, $2.1 million Sandholdt Road Bridge Replacement at Moss Landing and $1.2 million Boronda Road Bridge Replacement projects for Monterey County.

Dokken Engineering is recognized throughout California as having highly qualified roadway and bridge designers and construction management staff. Our current staff of 70 employees is more than adequate to undertake and complete this project on time and within budget. We can begin work on your project immediately.

3054 Gold Canal Drive • Rancho Cordova, CA 95670
Tel: 916.858.0642 Fax: 916.858.0643

We have an outstanding team for your project, which include highly skilled Dokken Engineering staff supported by the following well-qualified subconsultants:

Taber Consultants – Geotechnical Services

WRECO – Hydrology/Hydraulic Services

Thomson-Hysell Engineers – Surveying Services

LSA Associates, Inc. – Environmental Services

Cutler & Associates, Inc. – Right-of-Way Services

CCS Planning & Engineering, Inc – Independent Structure Design Check

The services for the reference project will be provided out of our Rancho Cordova office, which is located within a 1-1/2 hour drive from your office.

Since 1986, Dokken Engineering has been subject to numerous California Department of Transportation audits, and has always received positive evaluations of record keeping, accounting, and demonstration of financial stability.

Dokken Engineering is familiar with State, Federal and Local Agency projects in all respects, including funding issues and financial accounting practices.

Our most recent audit by the Department of Transportation was March 2000 in connection with our San Marcos-Escondido Bikeway contract with the City of San Marcos. We are confident that we will succeed in satisfying Stanislaus County's concerns in the event of a Post-Award Audit.

No official or employee of Stanislaus County or any business owned by an official of the County has an interest in Dokken Engineering or has been retained to solicit or aid in procuring any contact which may result from this proposal.

The qualifications and related experience included with this proposal merely summarizes the achievements of the project team relevant to project needs. What this statement cannot fully reveal is the drive, determination and enthusiasm that the project team possesses and will apply toward exceeding your expectations.

Sincerely,

Richard A. Dokken, P.E.
Principal-in-Charge

John A. Maniscalco, S.E.
Project Manager

2436/RAD/jam

TABLE OF CONTENTS

FIRM INTRODUCTION

Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, CA 95670

Contact: John A. Maniscalco, S.E.
Telephone: (916) 858-0642
FAX: (916) 858-0643

Dokken Engineering, a California Corporation established in 1986, specializes in providing consulting engineering services for bridges, rail transit, highways, local roads, and other transportation infrastructure facilities. Dokken Engineering provides expertise in:

- Project Planning and Development
- Design (PS&E)
- Construction Management & Inspection Services

We have an established reputation for timely delivery of cost effective designs for:

- Seismic Analysis/Retrofit of Bridges
- Bridges and Interchanges
- Local Roads and Streets
- Highways and Freeways
- Bridge Replacement/Rehabilitation
- Bicycle/Pedestrian Facilities
- Rail Transit Structures
- Sewer and Water

Since its formation in 1986, Dokken Engineering has completed engineering for more than 600 highway, local road and bridge projects in California, including more than 100 federally funded roadway and bridge replacement projects. The knowledge and experience thus gained, combined with highly qualified staff and state-of-the-art computer facilities, enable Dokken Engineering to provide cost-efficient planning and engineering for each client.

In our work with Local Agencies, funding is always a concern. We have completed projects that started with no available funding, and obtained it, and have completed projects that started with partial funding and obtained increased funding. In some cases, 100% funding was obtained.

Dokken Engineering has a staff of 70 employees including engineers, technicians and support staff. Dokken Engineering's current workload will allow for more than adequate staff to be assigned to this project. The firm's headquarters is located in Rancho Cordova (Sacramento County). Other offices are located in Salinas, San Diego, Placerville, and Tustin.

Dokken Engineering's Information Services Department is trained and equipped to meet any client's requirements, both present and future. Furthermore, we are confident that Dokken Engineering possesses all necessary equipment and supplies to perform the services as outlined in the request for proposal. Our staff is on a continuous training program using the facilities of New Horizon Training Centers and ExecuTrain classes.

Word Processing is performed with the latest version of Microsoft Word with the capacity to convert between WordPerfect and Word. Microsoft Excel is one of our core software packages used by everyone for countless different tasks. Scheduling is performed with Microsoft Project 98, SureTrack, Excel spreadsheets or any other need required by our client. Financials are handled by Wind2 Project Tracking and Financial Management System software and Microsoft Excel spreadsheets.

Our graphics capabilities are only limited by the needs of our clients. We use Photo Shop, Illustrator, Freehand, and Pagemaker as our core graphics programs. Scanning is performed with a HP color scanner. For 3D Modeling we use MicroStation J. We use the Master Piece feature of MicroStation J to generate drive-throughs and animation. For video presentations we use Adobe Premier. For visual presentations, we use Microsoft Power Point. Drafting is all computer-generated using the most current versions of MicroStation or AutoCad depending on our clients' needs.

FIRM INTRODUCTION

Our printing and reproduction capabilities include Tektronix 550 and 560 color printers, HP and LexMark printers, HP LaserJet color plotters and an OCE 9400 high-speed full size plotter. The OCE 9400 also performs as a full size copier.

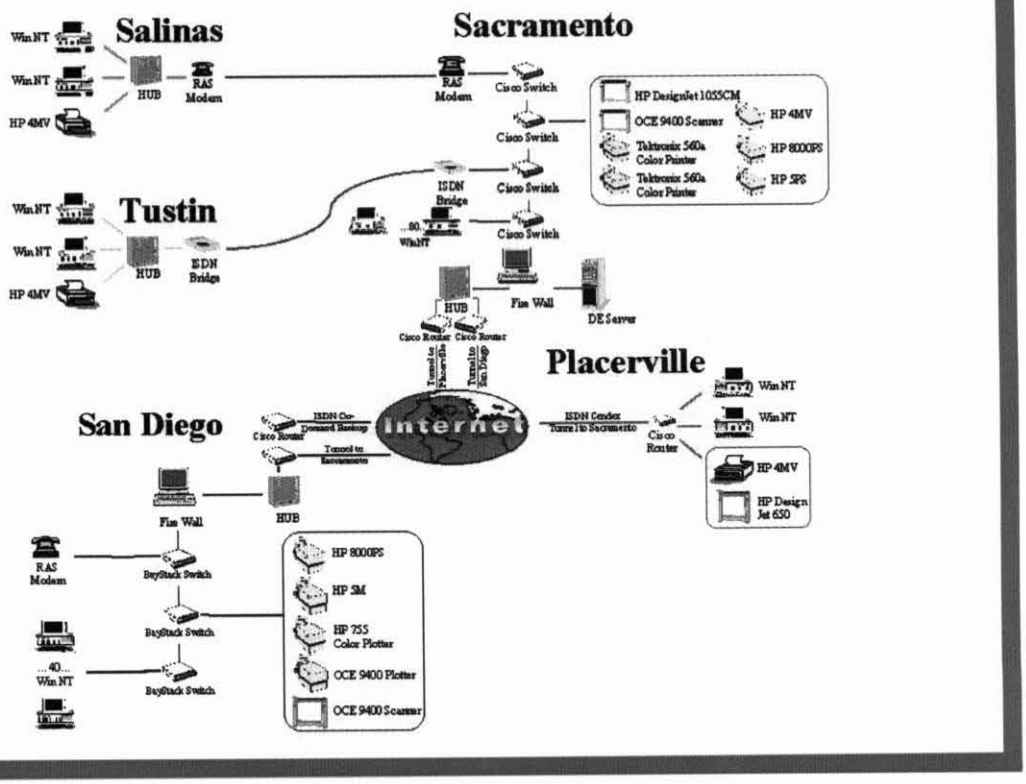
Dokken Engineering has available for client use an FTP server which allows transfer of files through the Internet. Field personnel are equipped with laptop computers which can access corporate resources through modems and the Internet. All branch office locations are connected through Virtual Private Networks. Below is a list of engineering and network capabilities:

- ***Engineering Services***
  - GeoPak – Civil Design Software
  - MathSoft's MathCad – Electronic calculation pad
  - BDS, Yield, Foot, Seisab, MSTRUDL, Col6, Frame, LPILE, Group, and CONC – Bridge design and analysis packages

- ***Network*** – Microsoft NT Server Network utilizing Cisco routers, Baystack switches, HP printers. Desktop PC's use Windows NT workstation. The Dokken Engineering network is protected with a state-of-the-art firewall. The Sacramento and the San Diego offices are linked full-time through a T1 VPN. Satellite offices are linked via a virtual private network.

- ***Extranet*** – Dokken Engineering makes current project status data available to their clients through the Internet 24 hours a day, 7 days a week.

Network Diagram

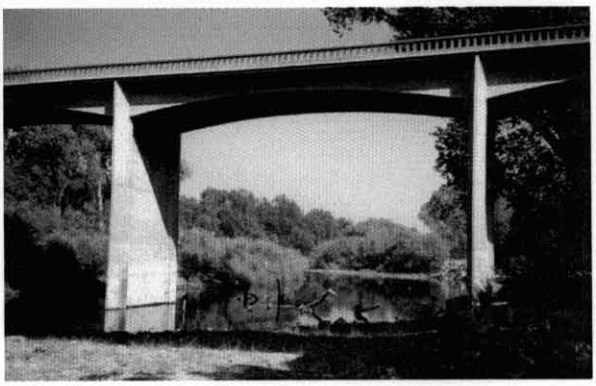


PROJECT UNDERSTANDING

Introduction and Background

The County of Stanislaus is proposing to replace the Santa Fe Avenue Bridge at the Tuolumne River. The bridge is located east of Modesto and connects the nearby communities of Empire and Hughson. Based on recent structural and geotechnical analysis of the existing bridge, prepared by Dokken Engineering for Stanislaus County through the Local Agency Seismic Retrofit program, it was determined that this bridge is seismically deficient and should be replaced.

Santa Fe Avenue is part of local route J7. This is a major collector road that connects numerous communities east of State Route 99 from Empire to Merced. At the site of this project, Santa Fe Avenue is located immediately east of and runs parallel to Burlington Northern Santa Fe Railway tracks and railroad bridges. The Lakewood Memorial Park cemetery is immediately to the east of Santa Fe Avenue, just south of the bridge. Residential and light industrial properties are to the east of Santa Fe Avenue and north of the bridge.



Bridge Profile Looking East

The existing bridge is a 150.88 m (495') long by 8.58 m (28'-2") wide 8-span reinforced concrete T-beam bridge. The bridge carries two lanes of traffic with 7.315 m (24') width of traveled way, no shoulders, raised curb and open baluster-type railing. The structure is supported on concrete pier walls founded on driven steel piles.

We prepared the Local Agency Seismic Retrofit Strategy Report for Stanislaus County and are therefore intimately familiar with the geotechnical and structural aspects of this bridge. Our investigation found that soil liquifaction and subsequent lateral spreading of the soils will occur at the location of the bridge during an earthquake (see Exhibit E "Preliminary Foundation Report – Seismic Retrofit" by Taber Consultants.) As a result, the base of the piers will displace toward the river. The existing piers and superstructure are inadequately reinforced to accommodate these loading, leading to failure of the bridge superstructure and potential bridge collapse. The seismic retrofit strategy that we developed consisted of strengthening the piers with large diameter CISS piles and pile extensions and strengthening the superstructure with edge beams. A bridge replacement alternative to the retrofit was developed and found to be less than 20% of the estimated cost of retrofitting the bridge. As a result, it was agreed by both the State and the County that replacement of the bridge is the preferred alternative.

Federal funds for Highway Bridge Rehabilitation and Replacement (HBRR) (88.53%) and State Highway Account funds (11.47%) will be used to reimburse Stanislaus County for 100% of all eligible project expenditures as they occur after federal authorization to proceed is received. These expenditures include Stanislaus County costs during the seismic analysis, preliminary engineering including environmental investigations and approval and right of way certifications, development of PS&E, and the cost of construction and construction engineering to produce the project selected at the Strategy Meeting. The County will pay the consultant and invoice Caltrans for work completed.

Per discussion with the County Engineer, James Gregg, the roadway alignment and structure design need to accommodate future widening of Santa Fe Avenue to 4 lanes. James also stated that two lanes of traffic need to be maintained during construction. This will require a somewhat different horizontal layout and/or staging plan than was provided on the General Plan contained in the Revised Strategy Report that

only provided for one traffic lane during construction. Provided herein are three alternative methods for satisfying this criteria.

We know from our recent work on the City of Modesto 9th Street Bridge replacement, Town of Truckee Glenshire Drive Bridge replacement and Monterey County Sandholdt Road Bridge replacement that bridge aesthetics could be a focus of local community groups. The Dokken Engineering team has extensive experience working with community groups and will work closely with Stanislaus County, Caltrans, and the community to balance aesthetics funding issues early on so that the project stays on schedule.

Proposed Alignment

The roadway alignment will satisfy AASHTO Roadway Design Specifications and Caltrans Local Program Guidelines and Procedures manuals for HBRR project. Seismic program funding is limited to in-kind facility replacement and HBRR funds will only cover approach roadway length and width necessary to accommodate safe flow of traffic onto the new bridge. This major collector roadway (rural) with traffic volume ADT over 6000 (ADT south of the bridge was 7696 in 1998 per conversation with County Traffic Engineer David Myers), and therefore requires 2.4-m wide shoulders on the new bridge. The new bridge width will be roughly 12.9 m (42.4') wide and carry two lanes of traffic of 3.6 m (11.8') each, with two 2.4 m (7.9') shoulders (with potential for use as bike lanes).

Santa Fe Avenue Looking South

The existing roadway is centered within the County's existing 100-foot wide right-of-way (right-of-way is slightly wider to the east at the bridge.) At the location of the proposed realignment, the roadway borders BNSF Railway to the west and the cemetery to the east. It may be difficult and likely not possible to obtain right-of-way from these properties. Therefore, we strongly recommend that proposed and future roadway alignments remain outside of the existing cemetery and railroad right-of-way.

The proposed new alignment would tie in with the existing Santa Fe Avenue north of the bridge by use of reversing curves north of the bridge and modification to the existing curve south of the bridge. The profile grade would closely match the grade of the existing structure. Based on an assumed traffic design speed for the final roadway realignment of 100 km/h (62 mph) and no super-elevation, the minimum comfortable curve radius should be 700 m with a tangent between reversing curves of 70 m. For the same design speed but with a 2% super-elevation, such as exists south of the bridge, the minimum curve radius is 500m. The existing curve south of the bridge has a radius of 548 m (1800'), therefore, the existing roadway curve radius may be reduced to provide the roadway realignment shift to the east. For the temporary stage construction alignment, assuming traffic speed can be reduced to 50 km/h (31 mph), the minimum curve radius without super-elevation is 150 m (492').

Santa Fe Avenue Looking South

Roadway will include turning lane for cemetary access and connection to existing access roads and driveways.

Curve lengths and overall limits for the three alternative bridge replacements, described in the Proposed Structure section, are as follows:

	Alternative 1	Alternative 2	Alternative 3
Bridge approach embankment length (on tangent)	45 m (148')	45 m (148')	45 m (148')
Roadway realignment length north of bridge	170 m (560')	160 m (525')	None
Roadway realignment length south of bridge	440 m (1444')	440 m (1444')	None
Temporary detour length north and south of bridge	75 m (246')	None	65 m (214')
Total length of roadway work	655 m (2150')	645 m (2120')	110 m (360')

Refer to Exhibit A for example roadway realignment for Exhibits B, C, and D for Bridge Alternatives.

Proposed Structure

Based on preliminary design, a cast-in-place prestressed concrete box girder type structure was found to be the most economical for this site. This structure type can provide a span that is long enough to not keep the piers outside of river normal flow height, but place the piers far enough from the banks of the river during summer flows to eliminate the need for temporary cofferdams for foundation construction. New piers will be located away from the existing piers to avoid construction conflicts and maintain structural integrity of the existing bridge during all stages of the bridge replacement.

Some of the structure constraints are as follows:

1. Structure shall carry two lanes of traffic and contain 2.4 m wide shoulders.
2. Structure shall provide for future widening to an ultimate 4 lane roadway.
3. Maintain two lanes of through traffic during construction.
4. Satisfy Caltrans current Seismic Design Criteria as well as Caltrans Bridge Design Specifications, Memos to Designers Manual, Bridge Design Aids and Bridge Design Details.
5. Accommodate soil lateral spreading that results from soil liquifaction during earthquake.
6. Maintain the existing channel width. The proposed structure, including the temporary condition during construction, shall not result in an increase in the stream 100 year flood level by more than 0.01 feet.
7. Avoid impact to existing adjacent railroad bridges, including placement of bridge approach fills at the bridge approaches that would extend below the railroad bridges and around the railroad bridge columns.
8. Avoid impact to the existing access road at the south end of the bridge that passes under the railroad bridge.
9. Avoid impact to driveway at north end of bridge.
10. The detour is approximately 4 miles and, therefore, road closures shall be limited to non-peak traffic hours.

To accommodate the soil lateral spreading, the abutment and pier foundations and the bridge columns shall be capable of withstanding a sizable displacement without failure. To minimize the soil lateral loads on the pile, pier walls should be avoided. Large diameter cast-in-steel-shell (CISS) concrete piles or cast-in-drilled hole (CIDH) piles are foundation types for the piers since they can provide the necessary ductility and strength needed. Using two moderate size piles per pier that are around 2-m in diameter would be a more economical approach than providing a single large pile at each pier that would need to be around 3.5 meters in diameter. However, we have found in the design of the 9th Street Bridge in Modesto, that had similar soil lateral spreading, that the loads on CISS piles were greater than can be

accommodated by the pile reinforcement. On that structure, we are providing flexible small driven pile foundations on pile caps and the columns are designed to accommodate the displacement of the foundations. At this site, driven steel with a reinforced concrete pile cap that supports the column could provide the necessary ductility. The columns will need to be fixed to the superstructure to maintain stability. Circular columns are the most economical shape and provide the least resistance to stream flow and soil lateral spreading, however, aesthetic concerns may dictate other shapes.

We are proposing three alternative bridge configurations that will satisfy each of the above constraints. All three methods involve construction of cast-in-place prestressed box girder superstructures, seat type abutments and columns on CISS piles. *Refer to Bridge Advance Planning Study (Alternative 1, 2 & 3) at the end of this section (Exhibits A through D).* A description of each of these alternatives is as follows:

Alternative 1:

Construct the east bridge piles, columns, portions of bridge abutment and half of bridge superstructure east of existing bridge while traffic is maintained on the existing bridge in the first stage. Then, the northbound traffic is shifted onto the completed half of the new bridge while the southbound traffic remains on the existing structure. The east third of the existing bridge is removed to provide room for construction of the west half of the new bridge. All traffic is then relocated onto the new bridge and the remainder of the existing bridge is removed. To minimize crane mobilization and impacts within the river channel, the west CISS piles may be constructed in the first stage by closing a lane during non-peak traffic periods and removing portion of the bridge deck overhang. A traffic plate can be placed over the deck opening to maintain two lanes during peak traffic hours. The roadway realignment will require additional bridge approach embankment to the east of existing approach embankment and a retaining wall in a cut section along the east edge of roadway adjacent to properties north of the bridge. This is our preferred alternative as it requires very little temporary and permanent roadway realignment and satisfies the structural requirements. *See Exhibits A & B.*

One disadvantage to this alternative is that the bridge work may not be completed within one construction season due to the time consuming staged construction. Also, the future widening for four lane traffic will have to be on one side due to right-of-way constraints creating a minor dilemma as to where to locate the roadway crown, in the center of the 2-lane bridge or the center of the ultimate 4-lane bridge. Another disadvantage is that the realignment to the east impacts the cemetery property even though the work will remain within County right-of-way because the cemetery lawn and fencing extend roughly 7.5-m (25 feet) into the roadway right-of-way and into the location of the proposed realignment.

Alternative 2:

Construct a separate bridge for the southbound and northbound traffic to the west and east, respectively, of the existing bridge. The width of each bridge would need to be at least 8.07 m to accommodate 3.6 m lane plus 2.4 m outside shoulder, 1.2 m inside shoulder and 0.435 m barriers. The bridge will be a single or double-cell box girder supported on single column bents. The southbound bridge may need to be longer or require retaining wall to eliminate embankment that would impose on the railroad right-of-way and railroad bridge. A retaining wall may be required at the same location as the Alternative 1 retaining wall and another retaining wall will likely be required for the access road under the railroad bridge south of the Santa Fe Avenue Bridge. Both bridges can be constructed simultaneously allowing the traffic to be shifted onto the final alignment sooner. The existing structure can be removed in one stage. The area currently occupied by the existing structure is now available for future widening of Santa Fe Avenue to four lanes. The northbound roadway does not impact the properties to the east as much as Alternative 1. The new bridge may be completed within a single construction season. *See Exhibit C.*

A disadvantage to this alternative is that it requires the greatest amount of new bridge and roadway and, thus, is likely the most expensive of the alternatives. Larger diameter piles and columns will add significantly to the cost and will have greater impact on stream flow, particularly during the temporary condition when the existing bridge is still in place. This alignment has potential impacts to adjacent properties on both sides of the Santa Fe Avenue.

Alternative 3:

Construct slightly less than half of the box girder bridge on each side of the existing bridge. Support the bridge on sliding bearings (PTFE bearings) on top of bent caps and seat type abutments and held in place by temporary keys. Shift the traffic from existing bridge onto the new bridge. Remove the existing bridge and construct the center portions of the abutments and piers. Pull the two new box girder sections on sliding bearings toward the center to their permanent location. Place keys in the top of abutments and bent caps and place box girder soffit and deck closure pours. The wider new bridge will require bridge approach embankment and possibly retaining walls. Temporary roadway on embankment or structure may be constructed for approaches to the new bridge in the temporary location. *See Exhibit D.*

This method of construction allows the bridge to be located on the same alignment as the existing bridge without permanent roadway realignment. The foundation that supported the structure in the temporary location may be removed or left in place for use in future widening to the 4-lane ultimate roadway.

A primary concern for this structure type is that it will not be possible to develop a fixed top of pier connection to the superstructure. However, further analysis may show that a pin connection to the superstructure may be adequate to maintain structure stability during an earthquake. Another concern is that the roadway will need to be closed to traffic for a period of up to one week while the superstructure is being shifted and keys and closure pours are constructed.

Constructing a new bridge similar to Alternative 1 but to the west of the existing bridge rather than to the east may also be possible. However, it was not included due to impacts to the railroad and the access road under the railroad. Realigned roadway may cut into the railroad embankment and require retaining walls.

Use of a temporary bridge adjacent to the existing bridge would allow construction of the new bridge in one stage in the same alignment as the existing bridge. This approach would greatly reduce construction cost for new structure and roadway. However, the cost of temporary bridge and temporary approaches is estimated to be roughly $1,500,000 and, therefore, likely not a viable alternative.

Bridge Aesthetics

Aesthetic enhancements can be incorporated into the new structure at the option of the County. Attention will be given to the structure configuration and member shapes to provide an aesthetically pleasing bridge. Features such as the haunch girders, well balanced spans and short abutments are examples of form following function where aesthetics is inherent in the structural integrity of the concrete form. The 9th Street Bridge in Modesto and the Glenshire Drive Bridge in Truckee are recent examples of Dokken Engineering designed bridges that demonstrate these principals.

Community Involvement

The main objectives of the community involvement program proposed for this project are:

- Ensure the public is well informed and that public involvement is encouraged throughout the design process
- Promote a positive image for the County of Stanislaus

- Facilitate successful design/delivery of the project

The recommended program for public outreach will meet the Local Assistance Procedures Manual requirements and incorporate these primary activities: stakeholder identification, public and individual meetings, media relations, direct mail, advertising, and a Hotline.

The Dokken Engineering team will arrange and hold individual meetings with stakeholders and conduct or assist County staff in conducting public meetings to present project alternatives and obtain public comments.

Environmental Considerations

Replacement of the Santa Fe Avenue Bridge will involve various initial short-term impacts to the environment during construction, as well as other more long-term impacts due to the addition of new improvements that were not components of the existing bridge structure. The potential short-term implications will be described and mitigation measures proposed to reduce the project effects on water quality, bank stabilization, loss of habitat and disturbance to wildlife, detour requirements, and construction-related noise impacts. The area of potential impact will need to be determined in light of contractor access to the creek bottom, construction improvements and staging locations.

The long-term changes associated with the new bridge will be described and assessed. This includes an assessment of the visual impacts, loss of historic and cultural values, enhanced safety conditions, and the addition of bike lanes. Because the number of vehicular travel lanes will not increase with the new bridge, it is unlikely that there will be changes in levels of service, or the potential for growth inducement.

Replacement of the existing bridge will require environmental clearances and coordination with several agencies with jurisdiction over the project area. These clearances are needed in conjunction with approving the project and prior to initiating construction.

Environmental clearances will be conducted in accordance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). While most seismic retrofit projects can be cleared under the Programmatic Categorical Exclusion (CE), in light of the various potential issue associated with this bridge replacement, it is likely the Preliminary Environmental Study (PES) process will conclude that an Environmental Assessment (EA)/FONSI will be needed for NEPA clearance. Similarly, the project will probably require a Mitigated Negative Declaration (MND) to address State environmental review processes. Environmental documents and processing requirements will be conducted in accordance with the Caltrans Local Programs Procedure (LPP) 96-04 (Environmental Procedures) for federally funded projects.

Geotechnical Considerations

The existing bridge has been found to be seismically vulnerable and it is proposed to replace it with a new structure 12±m wide and approximating existing grade and length (150±m). The new bridge is expected to be of concrete box-girder construction with one- or two-column bents and open-style abutments. Low channel grade is about 16±m below existing (and new) deck. The new bridge is expected to be located on or close to existing alignment; a temporary detour bridge may be constructed to maintain traffic during construction.

As part of earthquake retrofit evaluation, this office made five sampled test borings to maximum depth 37±m (28±m below channel bottom). Based on boring and test data, we identified potentially liquefiable material in the channel area to elev. 9± (2-6±m below existing ground surface); a risk of lateral spreading of channel materials is associated with such liquefaction. Soils at the banks are identified as stable with respect to liquefaction and there appears to be little potential for gross instability of the banks and abutments under seismic loading.

The response of new bridge foundations to (seismic) lateral loading and the potential for seismically induced liquefaction, lateral ground displacements and/or soil loading are expected to be substantial controls on bridge substructure and foundation design. Large diameter foundation elements such as cast-in-steel-shell (CISS) or cast-in-drilled-hole (CIDH) piling appear as likely candidates for structure foundations – particularly at the bents – because of their capability in resisting lateral loads and generating substantial bearing capacity.

If the loading on the large diameter piles is found to be higher than can be accommodated by the pile, an alternative approach would be to provide deep slender flexible piles, such as driven steel H-piles that allow the foundation to displace. The bridge columns or piers walls would need to be sufficiently ductile to accommodate the large foundation lateral displacements.

Utilities and Obstructions

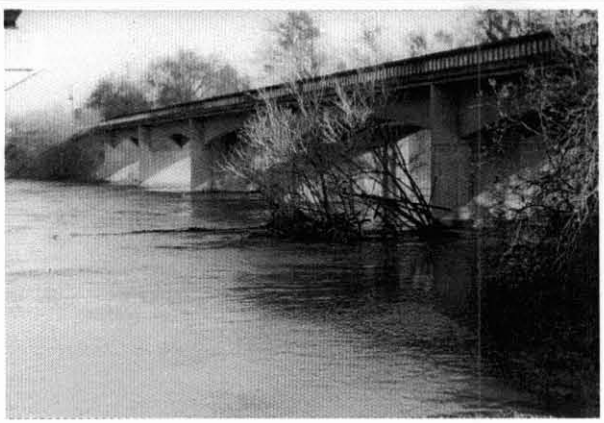
Existing utilities within the project limits include:

- 4" gas line along the west side of the alignment and under the east bridge deck overhang.
- Overhead electric service east of the roadway close to the right of way line.
- Buried telephone cable along the east edge of the alignment

Relocation of telephone, gas and electric service may be required. Close coordination with the utility owners will be required during preliminary design to determine the need for relocation and/or protection of these facilities. Utility owners will be contacted early in the development of the preliminary design to determine the location of existing and proposed utilities in the project area. This information will be used to determine the approximate cost to the project for utility relocation.

Location Hydraulic Studies and Design Hydraulic Studies

Location Hydraulic Studies (LHS) and Design Hydraulic Studies (DHS) are required by the Federal Highway Administration and Caltrans for bridges using funds from the Highway Bridge Rehabilitation and Replacement program (HBRR) and bridges being replaced under the Seismic Retrofit (SR) program.



Storm of 1997

According to the Caltrans Local Programs Manual, Location Hydraulic Studies need to provide the following information: "1) a brief description of the hydrology, 2) description of the type of traffic, 3) comments on constraints which influence selection of available alternatives, 4) location of property at risk, 5) estimate of potential damage to property at risk, and 6) discussion of the environmental impact". Several of these requirements as well as bridge and approach geometry rely upon accurate hydrologic and hydraulic analyses. The Design Hydraulic Study includes hydraulic information developed for the Location Hydraulic Study plus identifies bridge design criteria (soffit elevation, bridge opening, potential scour depth, etc.) and identifies the effects of the proposed bridge on river hydraulics. Location Hydraulic Studies and Design Hydraulic Studies, and a Bridge Hydraulic Report, in conformance with Caltrans Local Programs Manual Guidelines, will be prepared for the Santa Fe Avenue Bridge replacement project.

For the hydraulic study prepared for the Local Agency Seismic Retrofit Project, see Exhibit F.

Railroad Involvement

Burlington Northern Santa Fe (BNSF) Railway will need to review and approve any construction, temporary or permanent, that impacts their property. Shoring may be required to protect the railroad bridges and other railroad structures during excavation activities for new abutment, pier and embankment construction. The Dokken Engineering team will coordinate with the BNSF Railway to ensure that their requirements are met.

Traffic Management Plan

The Dokken Engineering team will work with the County to develop a Traffic Management Plan (TMP) to manage traffic during construction. The TMP will include Public Information Program, Motorist Information Program, Incident Management Program, and Construction Strategy Program. The Public Information Program will include brochures and direct mailers, media release including Modesto Bee, public information center with telephone hotline, and paid advertising. The Motorist Information Program will include advance warning signs to warn the motorist when the construction will occur as well as the information signs to encourage motorist to use alternate routes. The Incident Management Program will include arranging traffic police and tow service nearby to clear any accident that may occur on the bridge during construction. Construction Strategy Program includes phasing the construction. Construction strategy could also include adding incentive and disincentive clauses to the construction contract and limiting construction truck traffic outside peak hours.

Traffic Analysis will include general guidelines for construction related traffic handling including times of day when lane closures can be implemented, as well as the alternative routes to be used for detour routes and the resulting daily traffic volumes and corresponding levels of service during detour operations, if necessary.

Demolition Work

Due to the environmentally sensitive area surrounding the bridge, protective measures and removal procedures will be required by the contractor and requested in the special provisions. The contractor will be required to submit a removal plan that includes details for protective cover over the waterway and provides the removal sequence and location of equipment for each stage of bridge removal.

Drainage

Storm drains are located along Santa Fe Avenue. These will be relocated in conjunction with the realignment of Santa Fe Avenue. Revised drainage will be designed for 25 year rainfall intensity. Bridge deck drainage will be designed to Caltrans standards and will be carried to ground level below the structure through the columns.

Right-of-Way

Based on Stanislaus County Assessor's maps (see Exhibit G), the existing roadway right-of-way is 100' minimum through at the roadway and widens by 15' to the east for 208' alongside the bridge. Private property is located at all four corners of the structure. All of the properties have structures. Along the west side of the roadway is the BNSF Railway property that includes two railroad tracks and two railroad bridges that closely parallel the existing roadway. Piers from a removed bridge remain within the river channel west of the existing railroad bridges. The main line track is the furthest to the west and is located about 100 feet from the roadway centerline. The other track is about 20 feet closer to the roadway at the bridge. Based on our preliminary studies, permanent right-of-way may not be needed however temporary right-of-way easements for construction of retaining walls may be needed. Along the east side of the roadway are residential and light industrial properties north of the river. A barn located in the property closest to the bridge is the closest structure to the roadway. South of the river is the Lakewood Memorial

Lawn cemetery. Cemetery lawn and fencing is within 8 feet of the existing roadway and within the roadway right-of-way.

Project Cost

A preliminary estimate of the total project construction cost for two types of projects is shown below for comparison purposes:

Alternative 1: Cast-in-place prestressed box girder bridge constructed in stages with realignment to the east of the existing bridge.

Alternative 2: Two one-lane cast-in-place prestressed box girder bridges for each direction of traffic located alongside existing bridge.

Alternative 3: Two each one-lane cast-in-place prestressed box girder bridges for each direction of traffic located along both sides of existing bridge.

	Alternative 1	Alternative 2	Alternative 3
Roadwork (includes roadway section, drainage, traffic handling, utility relocation)	$950,000	$1,200,000	$450,000
Structure work	$2,420,000	$3,060,000	$2,760,000
Right-of-Way	$50,000	$100,000	$35,000
Bridge Removal	$250,000	$240,000	$240,000
20% Contingency	$734,000	$920,000	$697,000
Total	**$4,404,000**	**$5,520,000**	**$4,182,000**

Summary

Dokken Engineering understands that project funding is the driving force behind the project and that construction of this bridge needs to start by the Spring of 2002. Dokken Engineering is currently providing two bridge replacements for Monterey County and one bridge replacement for the City of Modesto that are being funded under the same program as the Santa Fe Avenue Bridge replacement. LSA Associates, Inc. is providing the environmental work on the Monterey County and City of Modesto replacement bridges and is on our team for the Santa Fe Avenue Bridge replacement. This past replacement experience will be the key to keeping this project on schedule.

Dokken Engineering is a full service consultant and has an outstanding team that can deliver. Dokken Engineering has extensive experience completing Federally funded bridge replacements and preparing all required paperwork and certifications. We will work closely with Stanislaus County, Ken Puth, District 10 Local Assistance Engineer, and Gary Goff, District 10 Structures Local Assistance Engineer to make sure that all required Federal and State steps are followed so that funding is not jeopardized and the project is a success for Stanislaus County.

Exhibit A

Roadway Alignment

EXHIBIT A

Metric

DOKKEN ENGINEERING

3054 Gold Canal Drive
Rancho Cordova, CA 95670
(916)858-0642

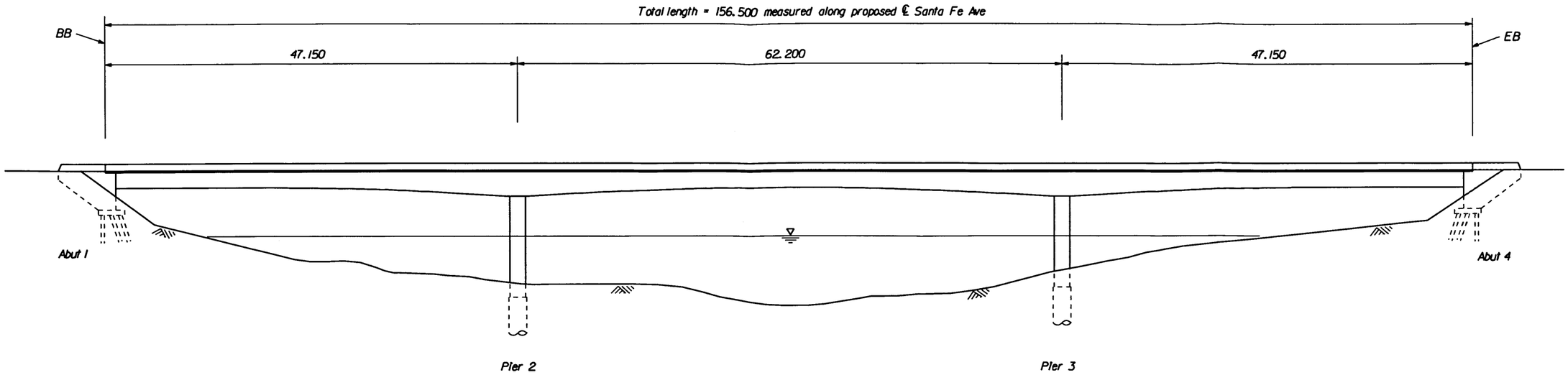
PROJECT MANAGER	J. Manlscalco
PROJECT ENGINEER	M. Maechler
DETAILS	K. Dang
DATE	June 2000
METRIC SCALE	1:2000

PROJECT
SANTA FE AVE BRIDGE REPLACEMENT

ALTERNATIVE 1 ALIGNMENT

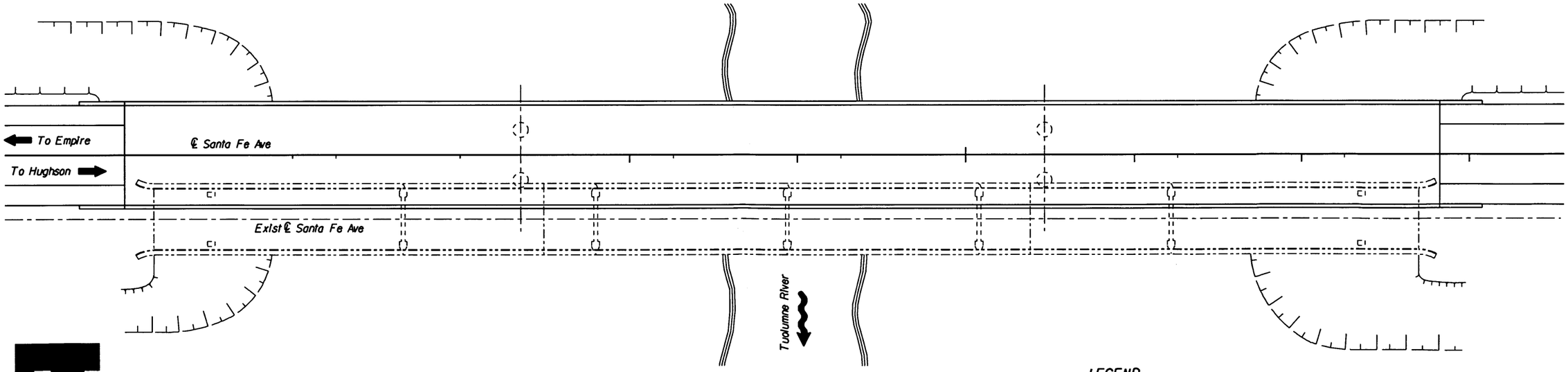
Exhibit B

Bridge Alternative 1



ELEVATION

1: 500



PLAN

1: 500

LEGEND

---------- Denotes existing structure

Note:

All dimensions are in meters unless otherwise shown.

Metric

DOKKEN ENGINEERING

DES.	MGM
DR.	CH
CHK.	
APPD.	

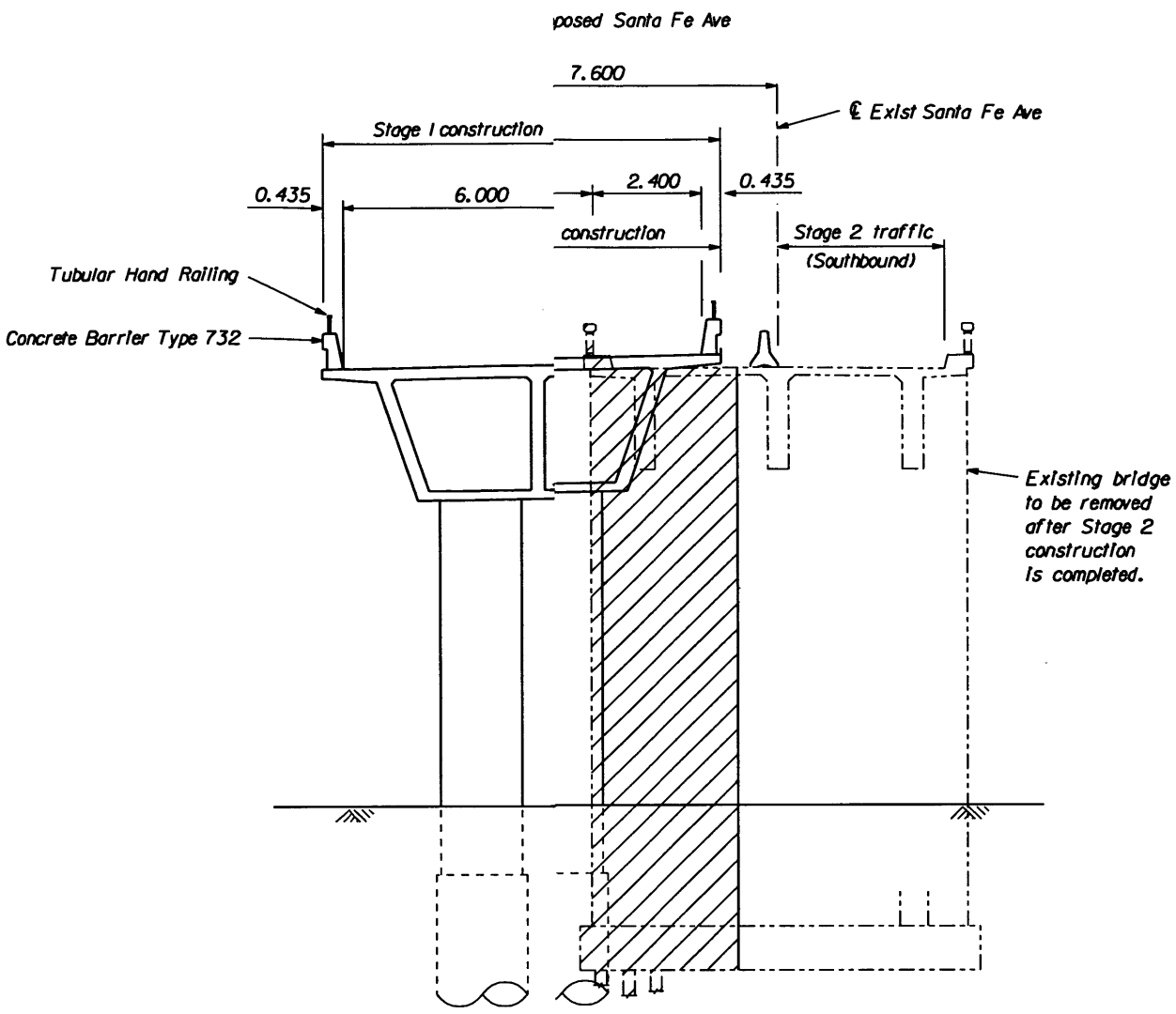
NO.	DATE	REVISION	BY	APPD

SANTA FE AVE BRIDGE AT TUOLUMNE RIVER
ADVANCE PLANNING STUDY - ALTERNATIVE 1

PREPARED FOR
STANISLAUS COUNTY

SHEET
OF
DATE 6-16-00
DWG. NO.

2346APSI.DGN REVJ CH 6-16-00



TYFTION - STAGE 2

1: 50

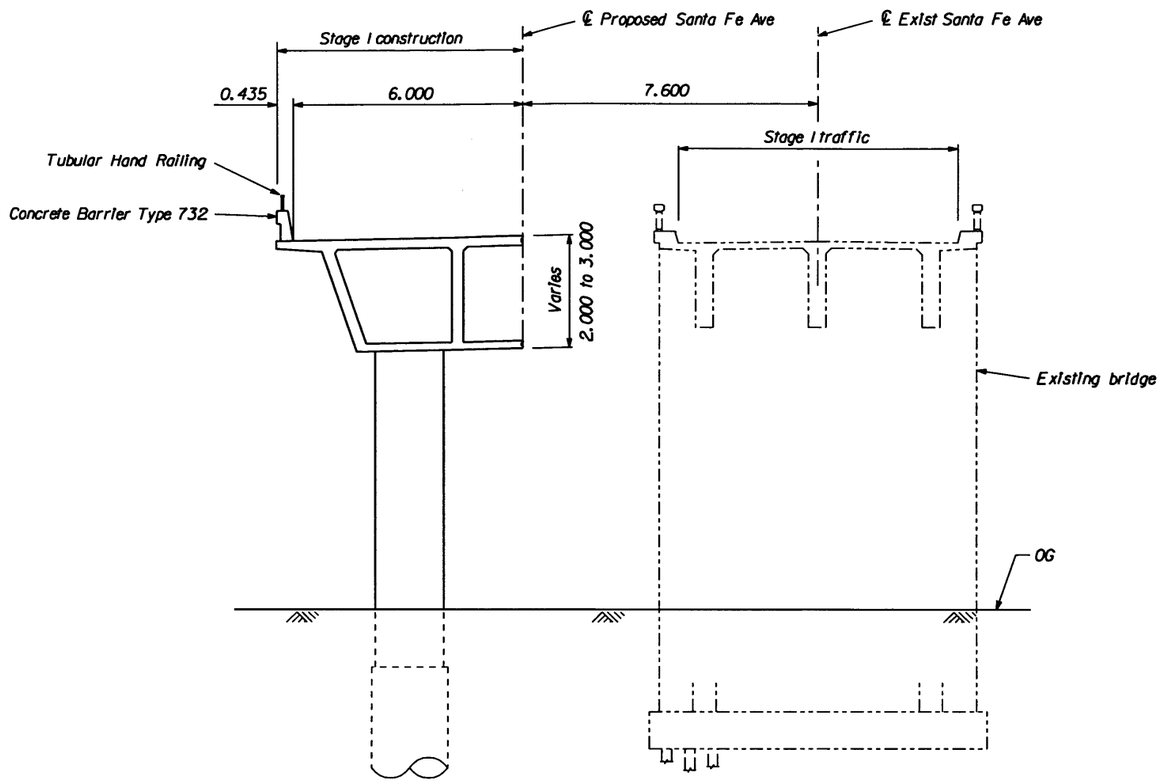
Metric

Note:

All dimensions are in meters unless otherwise shown.

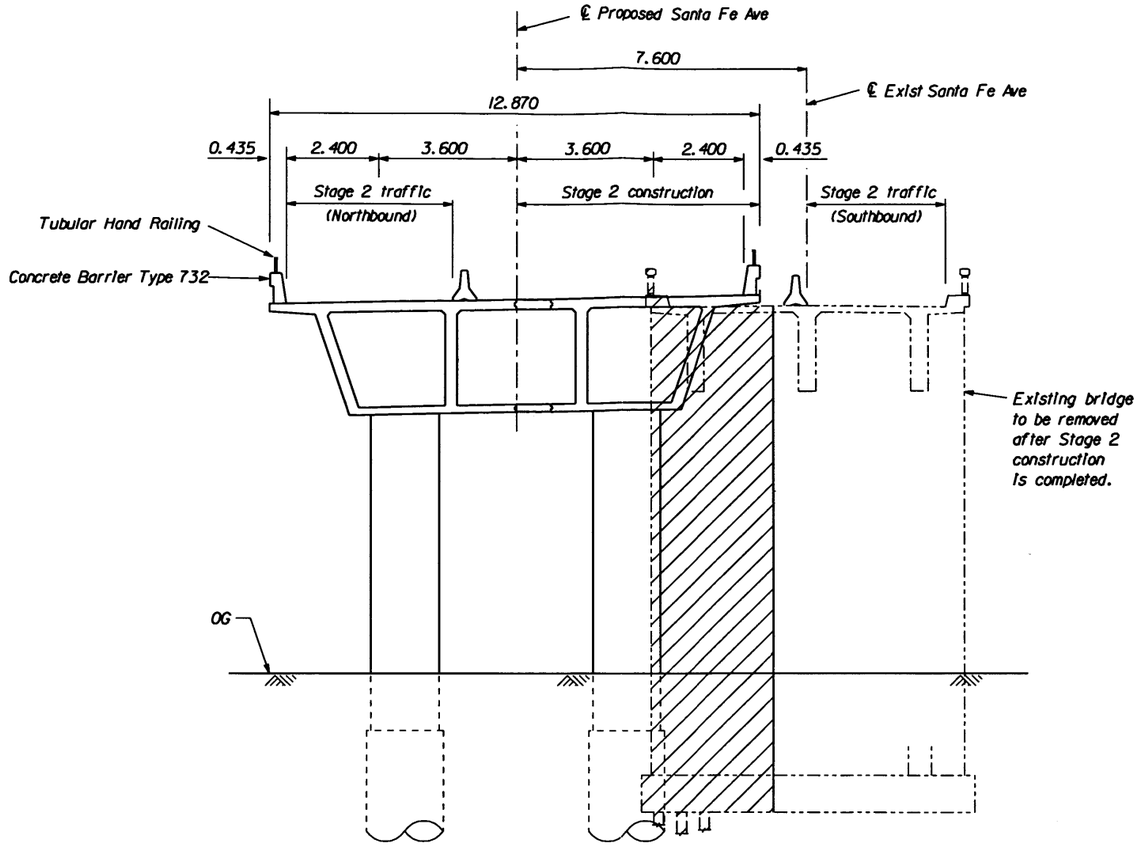
DOKKEN ENGINEERING	DES. MGM DR. CH CHK. APPD.	NO. DA	R 1	PREPARED FOR STANISLAUS COUNTY	SHEET OF DATE 6-16-00 DWG. NO.

2346APSI.DGN REV.0 CH 6-16-00



TYPICAL SECTION - STAGE 1

1: 80



TYPICAL SECTION - STAGE 2

1: 50

Metric

LEGEND

-------- Denotes existing structure

Denotes bridge removal (Stage 2)

Note:

All dimensions are in meters unless otherwise shown.

DOKKEN ENGINEERING

DES.	MGM
DR.	CH
CHK.	
APPD.	

NO.	DATE	REVISION	BY	APPD

SANTA FE AVE BRIDGE AT TUOLUMNE RIVER ADVANCE PLANNING STUDY - ALTERNATIVE 1

PREPARED FOR STANISLAUS COUNTY

SHEET	
OF	
DATE	6-16-00
DWG. NO.	

2346APSI.DGN REV.0 CH 6-16-00

DEPARTMENT OF TRANSPORTATION

ADVANCE PLANNING STUDY ESTIMATE - ALTERNATIVE 1

CHARGE		EX AUTH		BR. NO.	38C-0003		
STRUCTURE	Santa Fe Ave Bridge at Tuolumne River					TYPE	IBGFN
DISTRICT	10	COUNTY	STA	ROUTE		KP/PM	
DESIGN SECTION		CCS Planning and Engineering, Inc.					

LENGTH 156.5 X WIDTH 12.87 = AREA 2014 M2

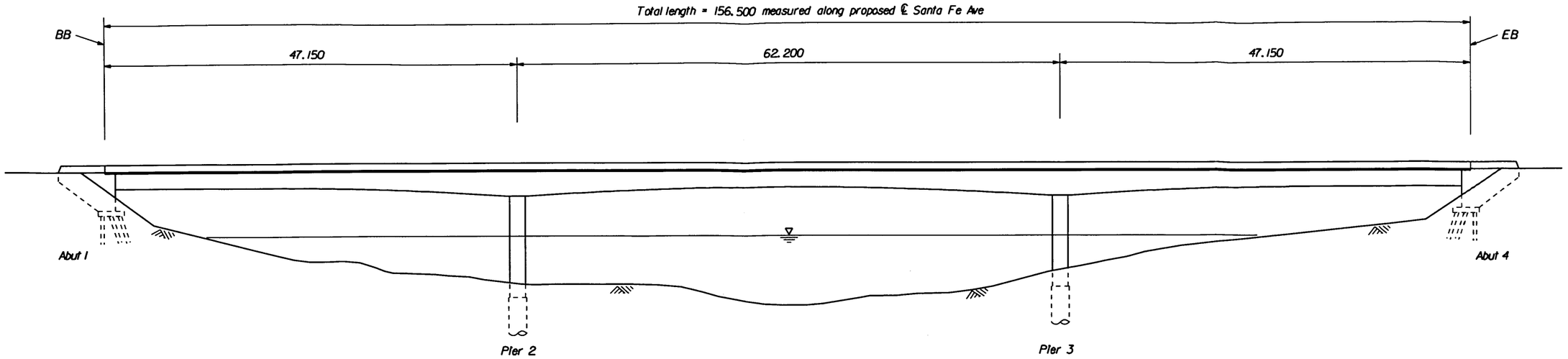
CODE	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
129000	TEMPORARY RAILING (TYPE K)	M	345	$ 35.00	$ 12,075
192003	STRUCTURE EXCAVATION (BRIDGE)	M3	246	$ 75.00	$ 18,431
193003	STRUCTURE BACKFILL (BRIDGE)	M3	123	$ 50.00	$ 6,144
490753	FURNISH PILING (CLASS 625)	M	549	$ 40.00	$ 21,946
490754	DRIVE PILE (CLASS 625)	EA	30	$ 1,200.00	$ 36,000
490669	2.1 M CAST-IN-DRILLED-HOLE CONC PILING	M	88	$ 4,000.00	$ 352,000
500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LS	LS	$ 68,000
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	65	$ 400.00	$ 26,000
510053	STRUCTURAL CONCRETE, BRIDGE	M3	1,500	$ 725.00	$ 1,087,620
510085	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE EQ)	M3	18	$ 625.00	$ 11,207
519129	JOINT SEAL ASSEMBLY (MR 100 MM)	M	26	$ 1,000.00	$ 25,740
520102	BAR REINFORCING STEEL (BRIDGE)	KG	270,000	$ 1.40	$ 378,000
833088	TUBULAR HANDRAILING	M	337	$ 175.00	$ 59,047
833125	CONCRETE BARRIER TYPE 25	M	337	$ 250.00	$ 84,353

Rec'd in Est Group By		Date	
Quantities By	O. M. Li	Date	6/21/00
Checked By	MGM	Date	6/21/00
Revised By		Date	
APS Estimate By	O. M. Li	Date	6/21/00

SUB TOTAL		$ 2,174,487
MOBILIZATION	5%	120,805
SUB TOTAL BRIDGE ITEMS		$ 2,416,097
CONTINGENCIES	20%	$ 483,219
BRIDGE TOTAL		$ 2,899,316
BRIDGE TOTAL PER M2		1,563.93
BRIDGE REMOVAL		$ 250,000
FOR BUDGET PURPOSES		$ 3,150,000

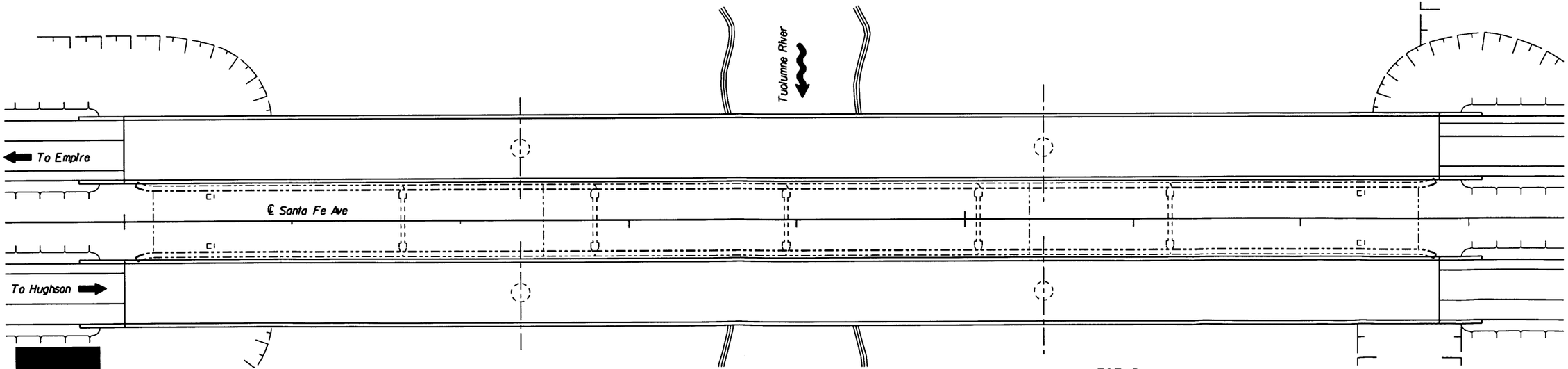
Exhibit C

Bridge Alternative 2



ELEVATION

1: 500



PLAN

1: 500

LEGEND

---------- Denotes existing structure

Note:

All dimensions are in meters unless otherwise shown.

DOKKEN ENGINEERING

DES.	MGM
DR.	CH
CHK.	
APPD.	

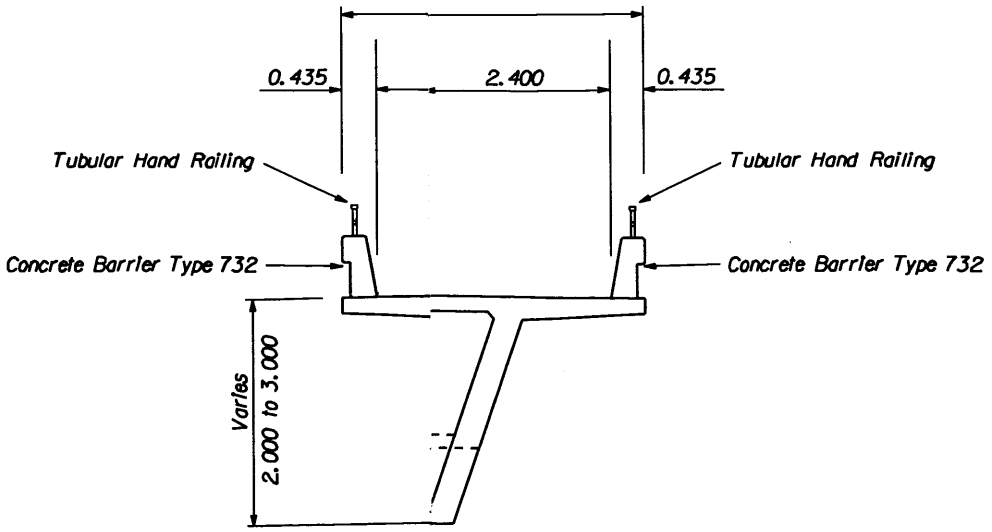
NO.	DATE	REVISION	BY	APPD

SANTA FE AVE BRIDGE AT TUOLUMNE RIVER ADVANCE PLANNING STUDY - ALTERNATIVE 2

PREPARED FOR STANISLAUS COUNTY

SHEET	
OF	
DATE	6-16-00
DWG. NO.	

2346APS2.DGN REVJ CH 6-16-00



Metric

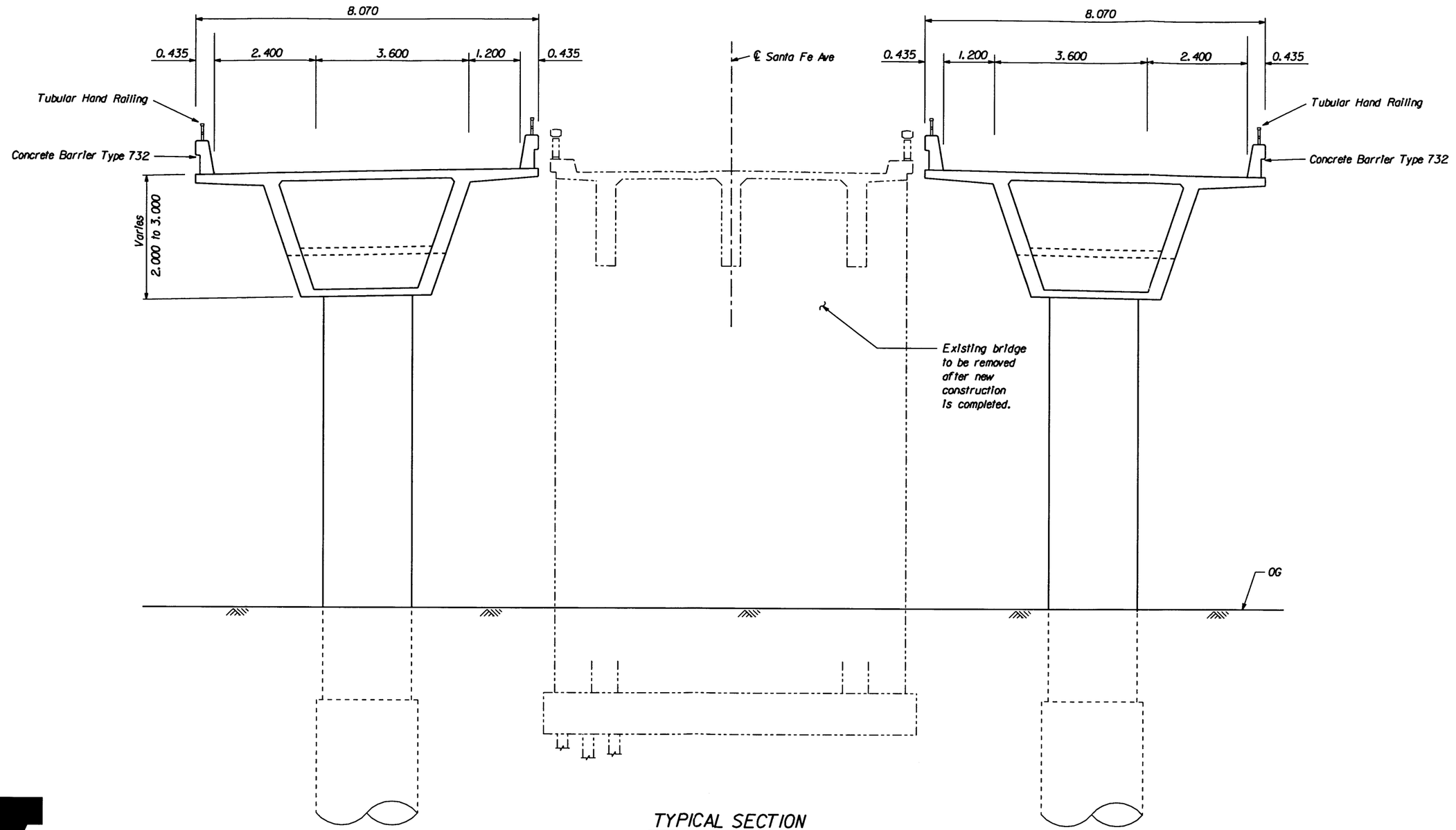
Note:

All dimensions are in meters unless otherwise shown.

DOKKEN ENGINEERING	DES. MGM DR. CH CHK. APPD.	NO.	DATE	R 2	PREPARED FOR STANISLAUS COUNTY

SHEET
OF
DATE 6-16-00
DWG. NO.

2346APS2.DGN REV.0 CH 6-16-00



TYPICAL SECTION

1:50

LEGEND

---------- Denotes existing structure

Note:

All dimensions are in meters unless otherwise shown.

Metric

DOKKEN ENGINEERING

DES.	MGM
DR.	CH
CHK.	
APPD.	

NO.	DATE	REVISION	BY	APPD.

SANTA FE AVE BRIDGE AT TUOLUMNE RIVER ADVANCE PLANNING STUDY - ALTERNATIVE 2

PREPARED FOR STANISLAUS COUNTY

SHEET	
OF	
DATE	6-16-00
DWG. NO.	

2346APS2.DGN REV.0 CH 6-16-00

DEPARTMENT OF TRANSPORTATION

ADVANCE PLANNING STUDY ESTIMATE - ALTERNATIVE 2

CHARGE		EX AUTH		BR. NO.	38C-0003		
STRUCTURE	Santa Fe Ave Bridge at Tuolumne River					TYPE	IBGFN
DISTRICT	10	COUNTY	STA	ROUTE		KP/PM	
DESIGN SECTION		CCS Planning and Engineering, Inc.					

LENGTH 156.5 X WIDTH 16.14 = AREA 2526 M2

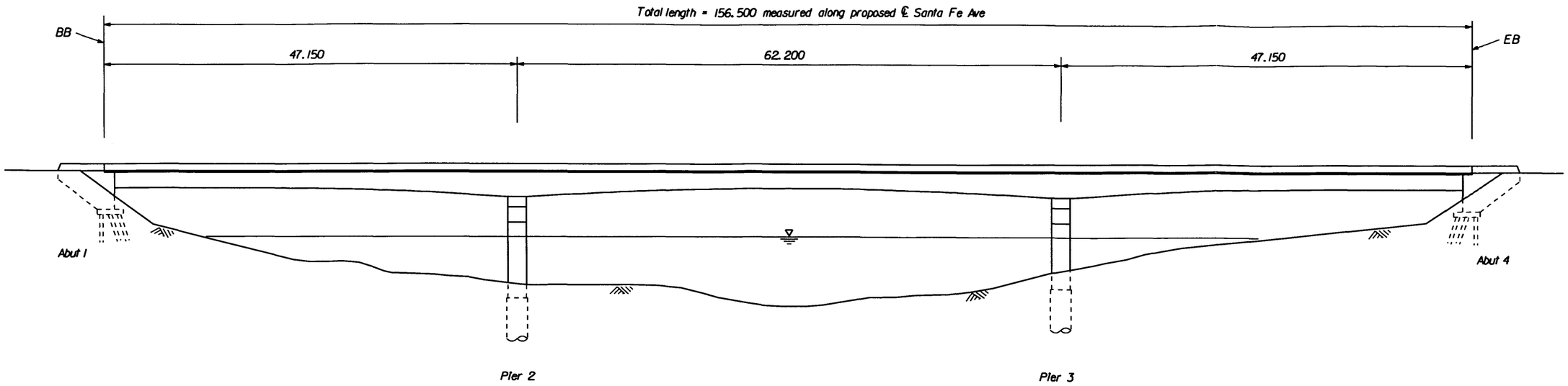
CODE	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)	M3	300	$ 75.00	$ 22,500
193003	STRUCTURE BACKFILL (BRIDGE)	M3	150	$ 50.00	$ 7,500
490753	FURNISH PILING (CLASS 625)	M	695	$ 40.00	$ 27,798
490754	DRIVE PILE (CLASS 625)	EA	38	$ 1,100.00	$ 41,800
490673	3.0 M CAST-IN-DRILLED-HOLE CONC PILING	M	92	$ 7,000.00	$ 644,000
500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LS	LS	$ 85,000
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	80	$ 380.00	$ 30,400
510053	STRUCTURAL CONCRETE, BRIDGE	M3	1,880	$ 625.00	$ 1,175,000
510085	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE EQ)	M3	22	$ 600.00	$ 13,200
519129	JOINT SEAL ASSEMBLY (MR 100 MM)	M	32	$ 1,000.00	$ 32,280
520102	BAR REINFORCING STEEL (BRIDGE)	KG	330,000	$ 1.40	$ 462,000
833088	TUBULAR HANDRAILING	M	335	$ 165.00	$ 55,275
833125	CONCRETE BARRIER TYPE 25	M	670	$ 225.00	$ 150,750

Rec'd in Est Group By		Date	
Quantities By	O. M. Li	Date	6/21/00
Checked By	MGM	Date	6/21/00
Revised By		Date	
APS Estimate By	O. M. Li	Date	6/21/00

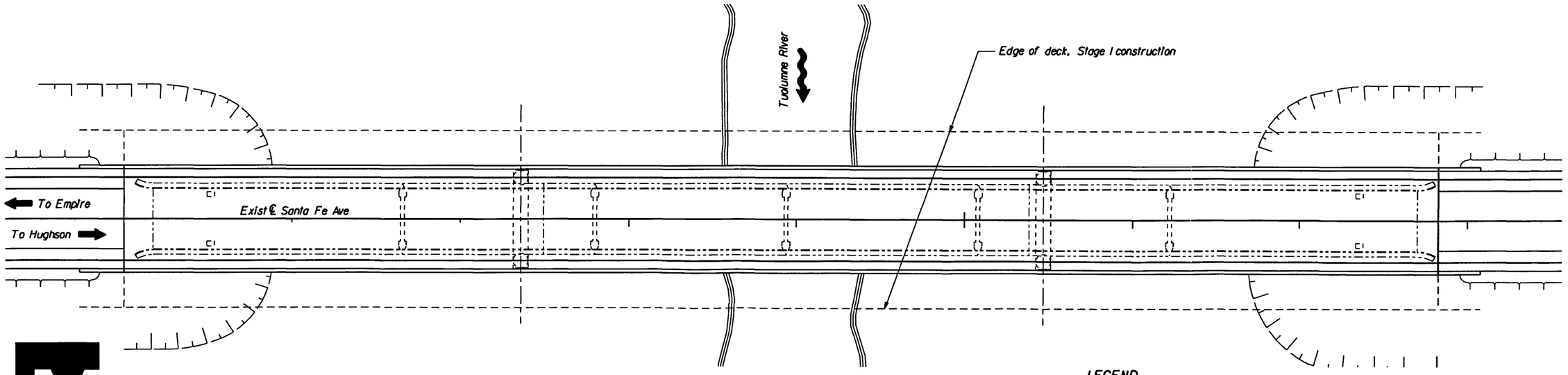
SUB TOTAL		$ 2,747,503
MOBILIZATION	5%	152,639
SUB TOTAL BRIDGE ITEMS		$ 3,052,781
CONTINGENCIES	20%	$ 610,556
BRIDGE TOTAL		$ 3,663,337
BRIDGE TOTAL PER M2		1,544.00
BRIDGE REMOVAL		$ 240,000
FOR BUDGET PURPOSES		$ 3,900,000

Exhibit D

Bridge Alternative 3



ELEVATION
1: 500



Metric

PLAN
1: 500

LEGEND

---------- Denotes existing structure

Note:
All dimensions are in meters unless otherwise shown.

DOKKEN ENGINEERING

DES.	MGM
DR.	CH
CHK.	
APPD.	

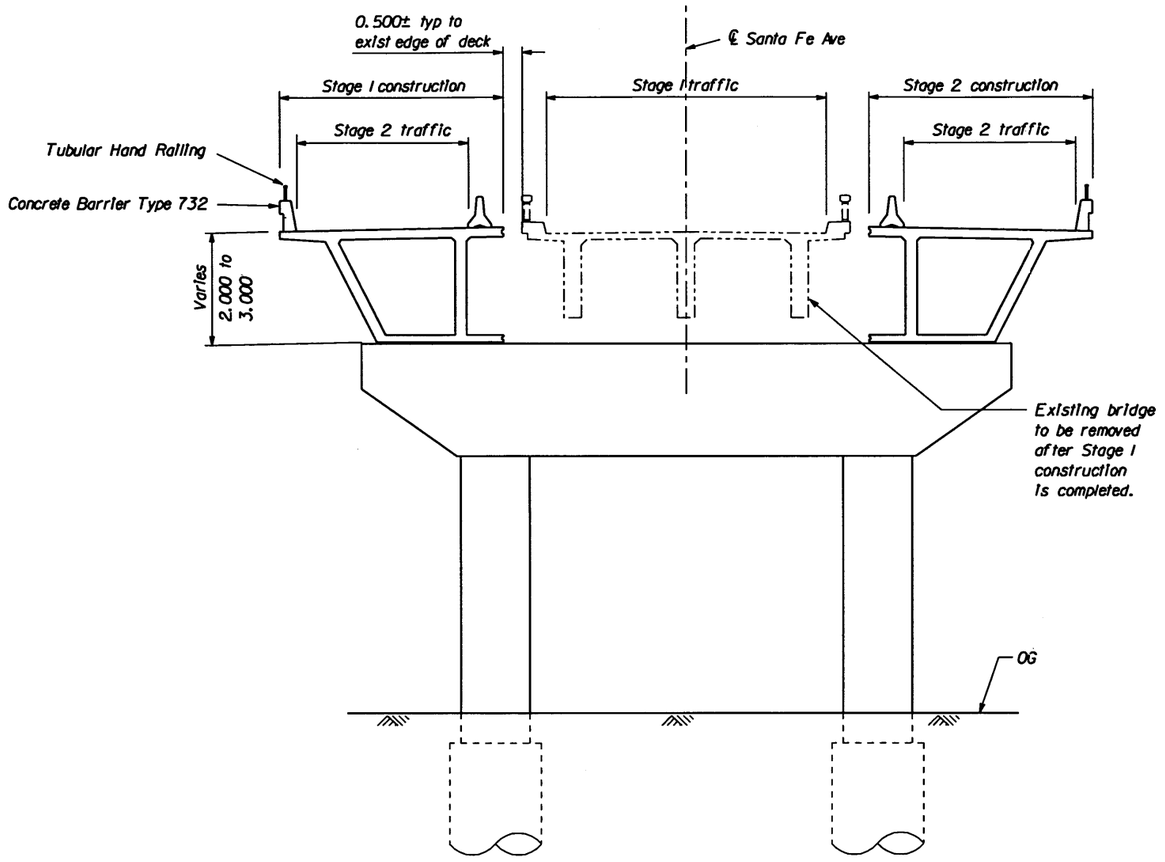
NO.	DATE	REVISION	BY	APPD

SANTA FE AVE BRIDGE AT TUOLUMNE RIVER
ADVANCE PLANNING STUDY - ALTERNATIVE 3

PREPARED FOR
STANISLAUS COUNTY

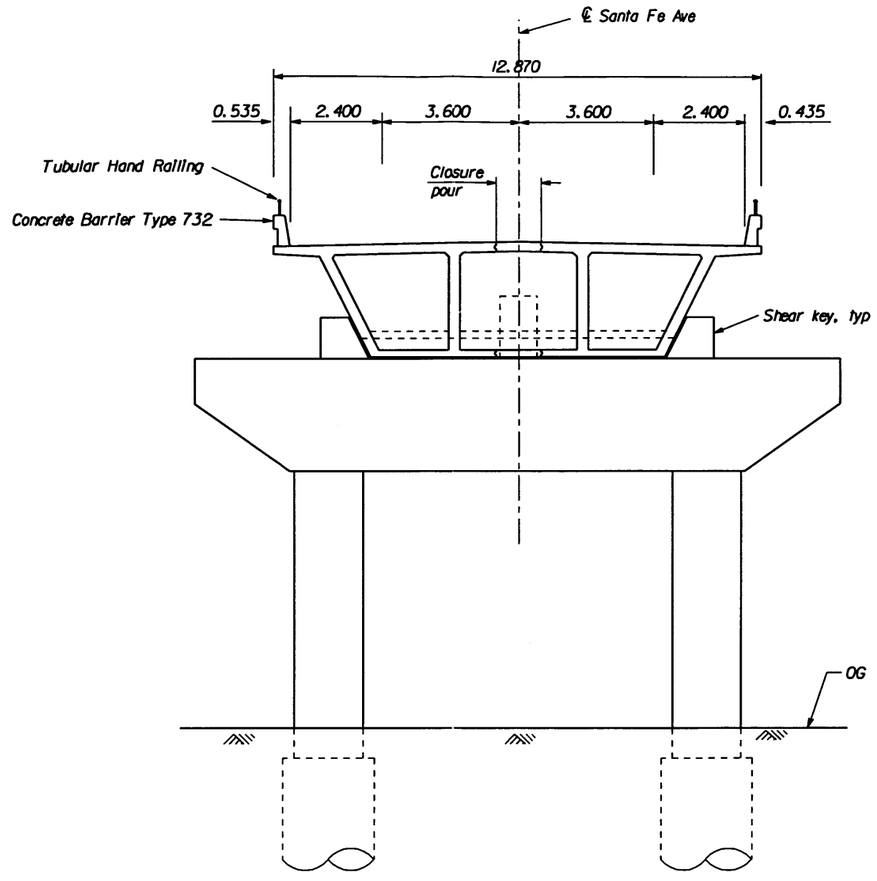
SHEET
OF
DATE 6-16-00
DWG. NO.

2346APS3.DGN REV.1 CH 6-16-00



TYPICAL SECTION - STAGS 1 & 2

1:80



TYPICAL SECTION - STAGE 3

1:50

Metric

LEGEND

---------- Denotes existing structure

Note:

All dimensions are in meters unless otherwise shown.

DOKKEN ENGINEERING	DES. MGM DR. CH CHK. APPD.	NO.	DATE	REVISION	BY	APPD	**SANTA FE AVE BRIDGE AT TUOLUMNE RIVER ADVANCE PLANNING STUDY - ALTERNATIVE 3**	**PREPARED FOR STANISLAUS COUNTY**	SHEET OF DATE 6-16-00 DWG. NO.

2346APS3.DGN REV.0 CH 6-16-00

DEPARTMENT OF TRANSPORTATION

ADVANCE PLANNING STUDY ESTIMATE - ALTERNATIVE 3

CHARGE		EX AUTH		BR. NO.	38C-0003		
STRUCTURE	Santa Fe Ave Bridge at Tuolumne River				TYPE	IBGFN	
DISTRICT	10	COUNTY	STA	ROUTE		KP/PM	
DESIGN SECTION		CCS Planning and Engineering, Inc.					

LENGTH 156.5 X WIDTH 12.87 = AREA 2014 M2

CODE	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)	M3	325	$ 75.00	$ 24,375
193003	STRUCTURE BACKFILL (BRIDGE)	M3	163	$ 50.00	$ 8,125
490753	FURNISH PILING (CLASS 625)	M	695	$ 40.00	$ 27,798
490754	DRIVE PILE (CLASS 625)	EA	38	$ 1,100.00	$ 41,800
490669	2.1 M CAST-IN-DRILLED-HOLE CONC PILING	M	88	$ 4,000.00	$ 352,000
500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LS	LS	$ 70,000
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	85	$ 400.00	$ 34,000
510053	STRUCTURAL CONCRETE, BRIDGE	M3	1,650	$ 725.00	$ 1,196,250
51XXXX	SHIFT SUPERSTRUCTURE	LS	LS	LS	$ 119,625
510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE EQ)	M4	22	$ 625.00	$ 13,750
519129	JOINT SEAL ASSEMBLY (MR 100 MM)	M	26	$ 1,000.00	$ 25,740
520102	BAR REINFORCING STEEL (BRIDGE)	KG	310,000	$ 1.40	$ 434,000
833088	TUBULAR HANDRAILING	M	337	$ 165.00	$ 55,605
833125	CONCRETE BARRIER TYPE 25	M	337	$ 225.00	$ 75,825

Rec'd in Est Group By		Date	
Quantities By	O. M. Li	Date	6/21/00
Checked By	MGM	Date	6/21/00
Revised By		Date	
APS Estimate By	O. M. Li	Date	6/21/00

SUB TOTAL		$ 2,478,893
MOBILIZATION	5%	137,716
SUB TOTAL BRIDGE ITEMS		$ 2,754,325
CONTINGENCIES	20%	$ 550,865
BRIDGE TOTAL		$ 3,305,190
BRIDGE TOTAL PER M2		1,762.53
BRIDGE REMOVAL		$ 240,000
FOR BUDGET PURPOSES		$ 3,550,000

Exhibit E

Preliminary Foundation Report

Taber
Since 1954

536 Galveston Street
West Sacramento, CA 95691
(916) 371-1690
(707) 575-1568
Fax (916) 371-7265
www.taberconsultants.com

September 22, 1997

Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, California 95670

Attention: John Maniscalco

Subject: Preliminary Foundation Report – Seismic Retrofit 1R2/396/64-6
Local Agency Retrofit 59Y217; Task-5
Tuolumne River Bridge at Santa Fe (38C-0003)
Stanislaus County, California

This preliminary report of foundation investigation is prepared for use in seismic evaluation and proposed retrofit foundation design and construction at the above site in accordance with your request. Limitations of study are discussed in the attached "General Conditions".

Exploration and Testing

Information on the nature and distribution of subsurface materials and conditions has been obtained by means of five augered/rotary drilled sampled test borings made to maximum depth 121±ft (lowest elev.-58±). Two of the borings were made at locations behind existing bridge abutments, two from ground surface in the channel and one from existing bridge deck. Borings on the banks and from channel bottom were drilled with continuous flight auger until free groundwater was encountered and then advanced by rotary method to final depth; the boring from the bridge deck was made by rotary methods for full depth.

Soil samples were recovered from the borings by means of a 2.0-inch OD "standard penetration" sampler advanced with standard 350 ft-lb striking force (ASTM D1586). Driving resistance of the sampler is recorded and can be correlated with soils strength and materials characteristics. Recovered samples were retained in moisture-proof containers for laboratory testing and reference. Laboratory testing included moisture content-dry density, unconfined compressive strength and classification (gradation and Atterberg Limit) tests.

The borings were logged and earth materials field-classified by a geologist as to consistency, color, gradation and texture on the bases of sampler penetration resistance, examination of samples and observation of drill cuttings. Groundwater observations were made in the borings during and after completion of drilling operations.

Field locations were referenced to the existing structure and the "General Plan" drawing by Dokken made for the strategy report. Locations, elevations, details of borings and results of tests are shown on the "Log of Test Borings" drawings and Figure-1, attached. T.A. Krause was field geologist for this study.

Earth Materials and Foundation Conditions

Soils encountered in the test borings can be divided into three units considered significant to bridge foundations: embankment fill; recent alluvium; and competent underlying "older" alluvium. Embankment fill encountered in the borings consists of slightly compact to dense silty sand and sandy silt to 28±ft depth (elev. 63±) on the north bank and to 23±ft (to elev. 69±) on the south.

Recent alluvium is comprised of very loose to slightly compact silty sand and sandy silt, with local gravel layers. These materials were penetrated from ground surface in the channel and from below embankments to elev. 42± in the north bank, to as low as elev. 9 at the center of the channel, and to elev. 59 in the south bank. These soils are weak, erodible and capable of only limited contribution to structure foundation support. In the active channel, the upper 8-20±ft (to elev. 30±) is interpreted as bedload material, subject to recurring scour.

The lowermost unit consists of compact to very dense (locally slightly compact) sand and silty sand with some variable cementation and layers of silty sandy gravel. This unit includes 4-10±ft thick stiff to very hard sandy and silty clay and clayey silt layers at various levels across the site. This unit was penetrated below the surface units to the maximum depth of exploration (121±ft; elev.-58±). Clayey layers are expected to be somewhat erosion resistant. This unit is capable of generating support for heavy, concentrated foundation loads without distress.

Free groundwater levels were measured at elev. 49-50±, approximating channel water surface at time of field study (April 1997). Free groundwater level is expected to follow channel water surface and soils below that level to be saturated and capable of yielding significant seepage to open excavations.

Seismic Data

Caltrans memo (8-22-96) "Acceleration Response Spectra for Local Agency Seismic Retrofit Bridges – Contract 59Y217" assigns this site horizontal bedrock acceleration of 0.2 g associated with an event of 6.75 magnitude on the Midway-San Joaquin fault. Soils profile is indicated as assumed "Type D" per ATC 32. Based on

review of published mapping and boring data, we concur with these design values for site acceleration and soils profile type.

Liquefaction and Site Stability

Liquefaction potential of encountered soils was evaluated using field and laboratory test data and the Liquefy2 computer program. Selected summary output is attached. On this basis, liquefiable zones are identified in the borings as follows (from north to south):

Boring-1 – no liquefiable soils in north bank/Pier-1
Boring-5 – between Piers-2 & 3, from channel bottom to elev. 30± (20±ft depth)
Boring-2 – near Pier-4, from channel bottom to elev. 31± (10±ft depth)
Boring-4 – between Piers-5 & 6, from channel bottom to elev. 35± (10-20±ft depth)
Boring-3 – no liquefiable soils in south bank/Pier-7

The depth of liquefiable soils is to 15±ft below pile footing/seal at Piers-2 and -6 and 2-4±ft below Piers-3, -4 and -5.

The banks and approach embankments are expected to be stable under seismic loading. Stability of slopes on both sides of the channel thread was investigated using the STABL computer program; shear strengths of liquefiable soils are based on published correlations of standard penetration tests and residual shear strength. Results of three of the stability trials are attached.

Based on results of these trials with a factor of safety much less than 1, "flow" type or "lateral spreading" ground failures on both banks are predicted for design seismic loading. Such failures could directly involve Piers-2, -3, -5 and -6 in ground movement and might also affect Pier-4 located near the current channel thread. Base of such failures could extend as low as elev. 30±.

Existing Foundations

Existing foundations are shown on 1947 "as-built" plans. All support is indicated to be by means of 10"x42lb "H"-sections with 35 ton design loading. Based on indicated pile type and length and 1997 boring data, existing pile capacities are estimated as follows:

Support	Footing Elevation	Lowest Liquefaction	Ave. Pile Tip Elevation	Qult (kips)	Tult (kips)	Lateral Stiffness (kips/inch)*
P-1	52	xx	-7.5	140	70	15
P-2	46	31	-13.8	140	70	2
P-3	36	31	-23.8	140	70	7
P-4	36	31	-23.8	140	70	7
P-5	36	33	-13.8	140	70	12
P-6	56	36	6	140	70	2
P-7	59	xx	-9.8	140	70	15

* Lateral stiffness assumes random orientation of X & Y axes of H-piling and free-head condition; footings at P-3, 4 & 5 constructed with 3-ft seal below footing and might be considered "fixed head

Retrofit

Unless mitigated, the predicted ground movements would displace existing substructure at the piers, potentially resulting in structure collapse. As the areas of potential liquefaction are in and immediately adjacent to the active channel, ground modification – e.g. excavation and replacement of weak soils, stone columns, grouting – is not expected to be a permissible or effective option and structural modification of the bridge to resist soil loading will be required.

Tentative foundation retrofit scheme is to drive 5-ft diameter CISS piling adjacent to the ends of all piers, resulting in 40±ft total substructure/foundation width subject to lateral loading from soils. All such loading will be toward the center of the channel.

Total lateral soil loading due to ground movement is estimated here based on a "passive" fluid pressure of the liquefied soil plus an inertial soil loading based on 0.2 g horizontal acceleration. A reasonable approximation is to apply the resultant of these soil loadings to the CISS piling at mid-height of the loaded interval.

Structure loading of CISS piling for retrofit have not been indicated. Encountered soil conditions are appropriate for installation of 5+ft CISS piling and soil support is available for substantial axial loads. Specified tip elevations will be established and recommendations made for installation when loads are more fully determined.

Attached are COM624 calculations for 5-ft CISS piling at Piers-2, -3, -4 and -6 based on estimated soil loading only. For the purpose of these calculations, CISS pile tip elevations and elevations of applied loads have been assumed as follows:

Support	Effective Ground Surface	Base of Mobilized Zone	Estimated Soil Load	Load at Elevation	Pile Tip Elevation
P-2	56	31	900 k	43.5	-20
P-3	49	31	500 k	49	-27
P-4	41	31	80 k	36	xx
P-5	51	33	500 k	49	-25
P-6	61	36	900 k	48.5	-15

Additional analysis of lateral response of CISS piling is expected to be required and may be based on the soil profiles contained in the COM 624 output.

* * * * * *

Please call if you have any questions on the foregoing, or earth materials and foundation conditions at this site. We appreciate this opportunity to be of service.

Very truly yours,

TABER CONSULTANTS

Franklin P. Taber
R.C.E. 30920
G.E. 816

Attachments:
"General Conditions"
Figure-1 "Gradation Curves"
Liquefaction Calculations
Slope Stability Trials
COM624
"Log of Test Borings" (2 sheets)

Exhibit F

Hydraulic Report

LOCAL AGENCY SEISMIC RETROFIT PROJECT
FIELD REVIEW, DEGRADATION ANALYSIS AND SEISMIC RETROFIT IMPACT ASSESSMENT

BRIDGE No. 38C0003
TUOLUMNE RIVER EMPIRE BRIDGE
SANTE FE ROAD

CONTRACT No. 59A0011B
TASK ORDER No. 8

Prepared for:
California Department of Transportation
Division of Structures

Prepared by:

WEST Consultants, Inc.
11848 Bernardo Plaza Court, Suite 140B
San Diego, CA 92128
(619) 487-9378

July 7, 1997

TABLE OF CONTENTS

Field Review Report

Caltrans Local Agency Seismic Retrofit Program

Bridge:	38C-0003	**Date:**	July 7, 1997
Local Agency Owner:	Stanislaus County	**Contract:**	59A0011B
Stream:	Tuolumne River		

Date of Site Visit:	June 4, 1997
WEST Engineers:	Tom Grindeland, Chris Eggers, and Jim Gessford
Survey Data:	Channel cross sections were surveyed at the upstream and downstream bridge faces. A copy of the survey notes is provided in Appendix 1.
Photographs:	See Appendix 2

Bridge Description:	Bridge 38C-0003 is located on Santa Fe Avenue about three miles east of the City of Modesto and one mile south of Empire. The bridge crosses the Tuolumne River, and was constructed in 1945. The bridge structure is a reinforced concrete "T" beam with 2 hinges. The deck is about 495 feet long and 28 feet wide. It is supported by seven columns and there are no abutments, there are cantilever end spans.

Degradation Evidence:	There was no visible evidence of degradation at the bridge site. There was some local scour around some of the piers. Sediment deposits were seen in the overbanks and on the inside bends of the channel which is meandering during low flow.

Other Observations:

Channel Geometry:	The river channel passes under the bridge relatively perpendicular to the bridge. However, the upstream and downstream channel meanders. The upstream channel finishes a bend to the right before it gets to the bridge. The downstream channel bends to the left downstream of the bridge. It should be noted that these conditions were observed at a time of relatively low flow.
Evidence of Scour:	Evidence of scour was noted at some of the piers, especially at the right edge of water. Scour depths were seen to be on the order of three to four feet.
Lateral Stability:	Bank material in the bridge reach is erodible, but is protected from erosion by concrete rubble and riprap.
Manning's "n" Value:	The Manning's n for the channel is estimated to be about 0.035. The Manning's n for the overbanks, which are heavily vegetated, is estimated to be about 0.060.

Pier and Abutment Riprap	Both the left and right abutments were seen to have sporadic riprap coverage. The riprap was seen to have a D_{50} of about 4 to 6 inches. There was riprap with a D_{50} of about 8 inches at pier 3.
Bed Material:	The bed material of the water course was observed to be sand, with a D_{50} of about 1 millimeter.
Pier Alignment:	The piers are generally aligned with the flow.
Hydraulic Controls:	There are two railroad bridges immediately downstream from the bridge, and two reinforced concrete piers downstream of the railroad bridges.
High Water Marks:	There was one high water mark painted at the pier nearest the right end of the bridge. It was noted to be about 7 feet below the filet in the low chord.
Debris:	A moderate amount of debris was seen at the bridge. Some of the piers out of the low flow channel had a significant amount of debris.

Degradation Analysis Report

Caltrans Local Agency Seismic Retrofit Program

Bridge:	38C-0003	**Date:**	July 7, 1997
Local Agency Owner:	Stanislaus County	**Contract:**	59A0011B
Stream:	Tuolumne River		

Summary of Results:

Between 1972 and 1997 (25 years) the channel thalweg at Pier 4 has aggraded approximately 2 to 3 feet. Overall the channel appears to be stable as the channel shape has changed very little over 25 years.

Basis of Analysis:

Historic channel cross sections are available for 1972 and 1996. A comparison of this historic cross section data to survey data collected by WEST Consultants is shown in Figure 1. As seen in the figure, the channel aggraded at Pier 4 by as much as five feet between 1972 and 1996. Between 1996 and 1997 the channel degraded two to three feet which seems reasonable given the record flows during that period. Generally, the comparison of the bridge cross sections shows a long period of slight aggradation followed by rapid degradation. However, the degradation experienced does not appear to have exceeded the 1972 minimum channel elevation.

Recommendations:

Channel cross sections at the bridge section should be surveyed on a continued periodic basis to monitor conditions at the bridge. No long-term degradation potential is evident and no other specific recommendations are made.

EMPIRE BRIDGE (TUOLUMNE RIVER) #38C0003
HISTORIC CHANNEL GEOMETRY

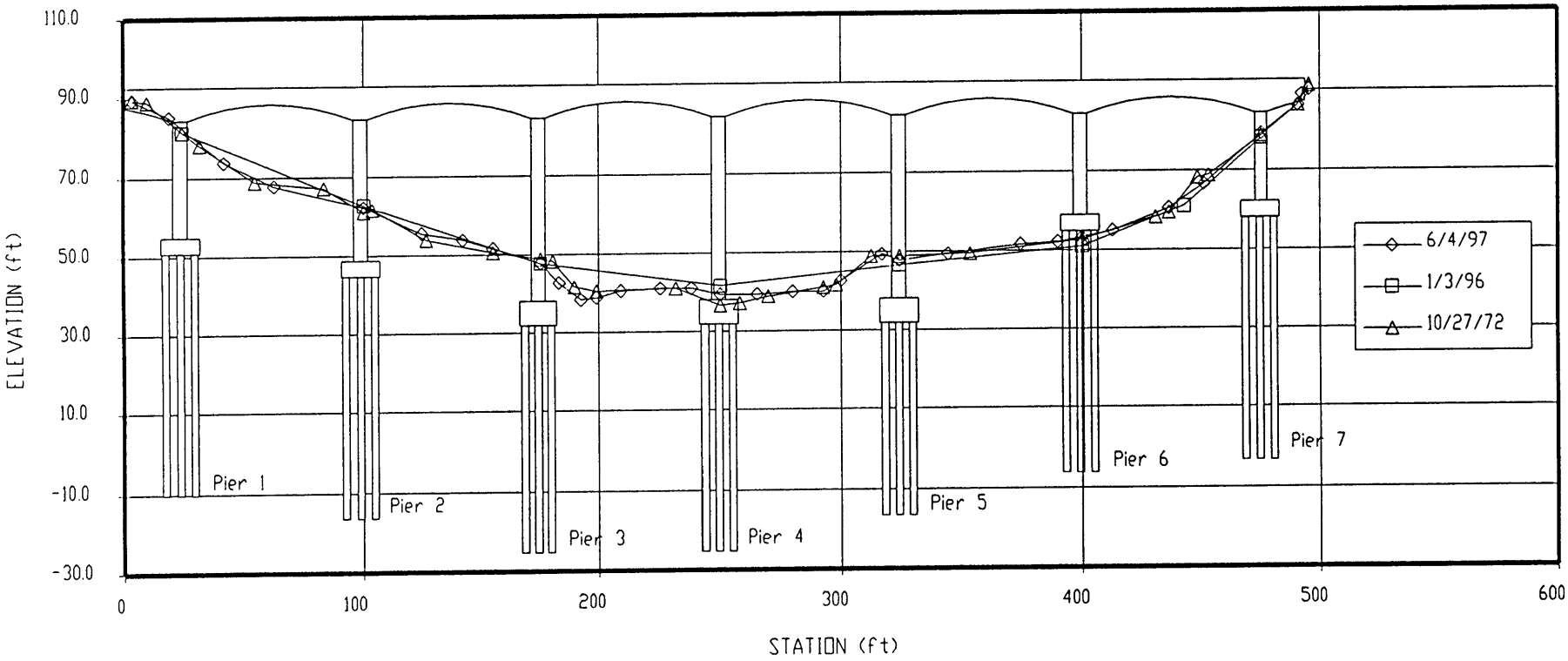


FIGURE 1

Seismic Retrofit Impact Assessment Report

Caltrans Local Agency Seismic Retrofit Program

Bridge:	38C-0003	**Date:**	July 7, 1997
Local Agency Owner:	Stanislaus County	**Contract:**	59A0011B
Stream:	Tuolumne River		

Proposed Seismic Retrofit Strategy:

The *Final Retrofit Strategy Proposal for Empire Bridge* calls for the following structural modifications:

1) Install seat extenders to prevent unseating of the superstructure at the hinges.

Impact Assessment:

None of the proposed structural modifications will influence the hydraulics or adversely impact scour potential at the bridge.

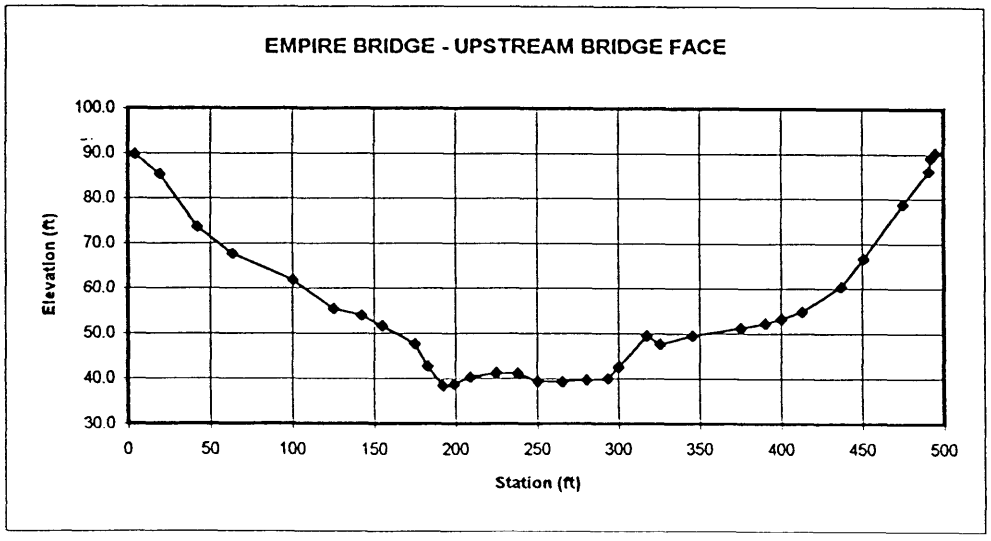
To aide in planning for any construction, a review of historic gage data of the nearest gage to the bridge (USGS Gage No. 11289650 at Modesto) was performed to determine low flow and high flow months. For this area the high flow months are January through May. The low flow months are typically July through September, with the lowest flow month being August. The average daily flow for the month of August is 171 cfs.

EMPIRE BRIDGE #38C0003
UPSTREAM BRIDGE FACE

SURVEY CREW: SURVEY DATE : 6/4/97

TOM GRINDELAND
JIM GESSFORD
CHRIS EGGERS

STA	RAIL ELEV	SOUNDING DEPTH	GROUND ELEV	NOTES
4	95.0	5.2	89.8	BRIDGE OPENING, LEFT ABUTMENT
19	95.0	9.7	85.3	
42	95.0	21.3	73.7	
63	95.0	27.3	67.7	
100	95.0	33.1	61.9	CL Pier
125	95.0	39.6	55.4	
142	95.0	41.1	53.9	
155	95.0	43.4	51.6	
175	95.0	47.3	47.7	CL Pier
183	95.0	52.3	42.7	LEW
192	95.0	56.6	38.4	
199	95.0	56.3	38.7	
209	95.0	54.7	40.3	
225	95.0	53.7	41.3	
238	95.0	53.8	41.2	
250	95.0	55.5	39.5	CL Pier
265	95.0	55.7	39.3	
280	95.0	55.2	39.8	
293	95.0	55.0	40.0	
300	95.0	52.4	42.6	REW
317	95.0	45.5	49.5	
325	95.0	47.3	47.7	CL Pier
345	95.0	45.5	49.5	
375	95.0	43.7	51.3	
390	95.0	42.8	52.2	
400	95.0	41.8	53.2	CL Pier
413	95.0	40.2	54.8	
437	95.0	34.6	60.4	
451	95.0	28.3	66.7	
475	95.0	16.1	78.9	CL Pier
491	95.0	8.8	86.2	
492	95.0	5.9	89.1	
495	95.0	4.8	90.2	Bridge Opening



EMPIRE BRIDGE #38C0003
DOWNSTREAM BRIDGE FACE

SURVEY CREW:

TOM GRINDELAND
JIM GESSFORD
CHRIS EGGERS

SURVEY DATE : 6/4/97

STA	RAIL ELEV	SOUNDING DEPTH	GROUND ELEV	NOTES
4	95.0	5.0	90.0	BRIDGE OPENING, LEFT ABUTMENT
25	95.0	15.3	79.7	CL Pier
48	95.0	24.7	70.3	
64	95.0	27.9	67.1	
86	95.0	30.1	64.9	
100	95.0	34.0	61.0	CL Pier
119	95.0	39.8	55.2	
143	95.0	32.3	62.7	
169	95.0	42.1	52.9	
175	95.0	48.8	46.2	CL Pier
187	95.0	52.3	42.7	LEW
202	95.0	54.7	40.3	
212	95.0	56.0	39.0	
228	95.0	54.8	40.2	
242	95.0	56.6	38.4	
250	95.0	55.7	39.3	CL Pier
264	95.0	55.5	39.5	
280	95.0	57.5	37.5	
295	95.0	57.0	38.0	
304	95.0	52.2	42.8	REW
314	95.0	47.1	47.9	
325	95.0	41.6	53.4	CL Pier
346	95.0	44.5	50.5	
367	95.0	44.7	50.3	
400	95.0	41.2	53.8	CL Pier
428	95.0	34.6	60.4	
451	95.0	28.7	66.3	
476	95.0	18.3	76.7	CL Pier
491	95.0	9.2	85.8	
493	95.0	6.0	89.0	
496	95.0	5.3	89.7	Bridge Opening

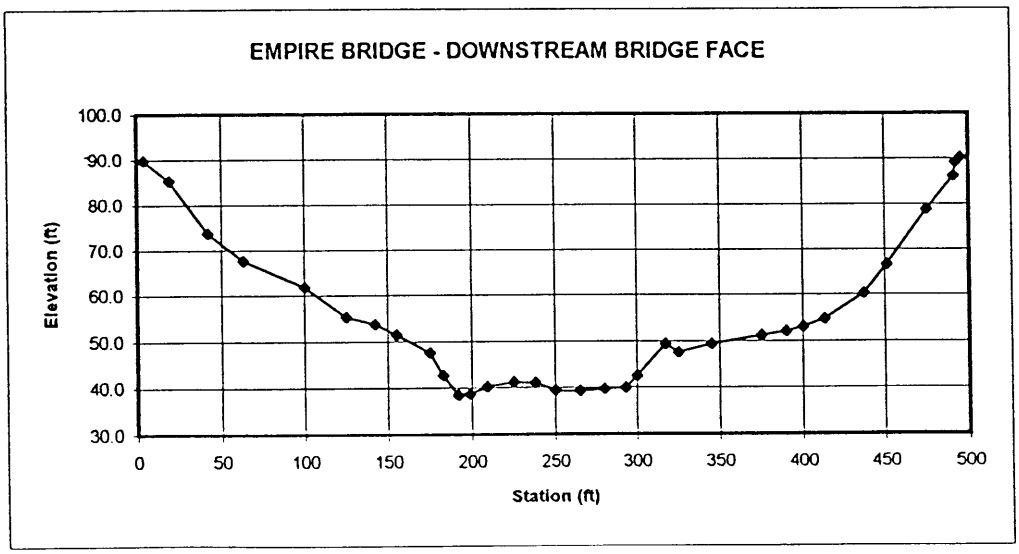
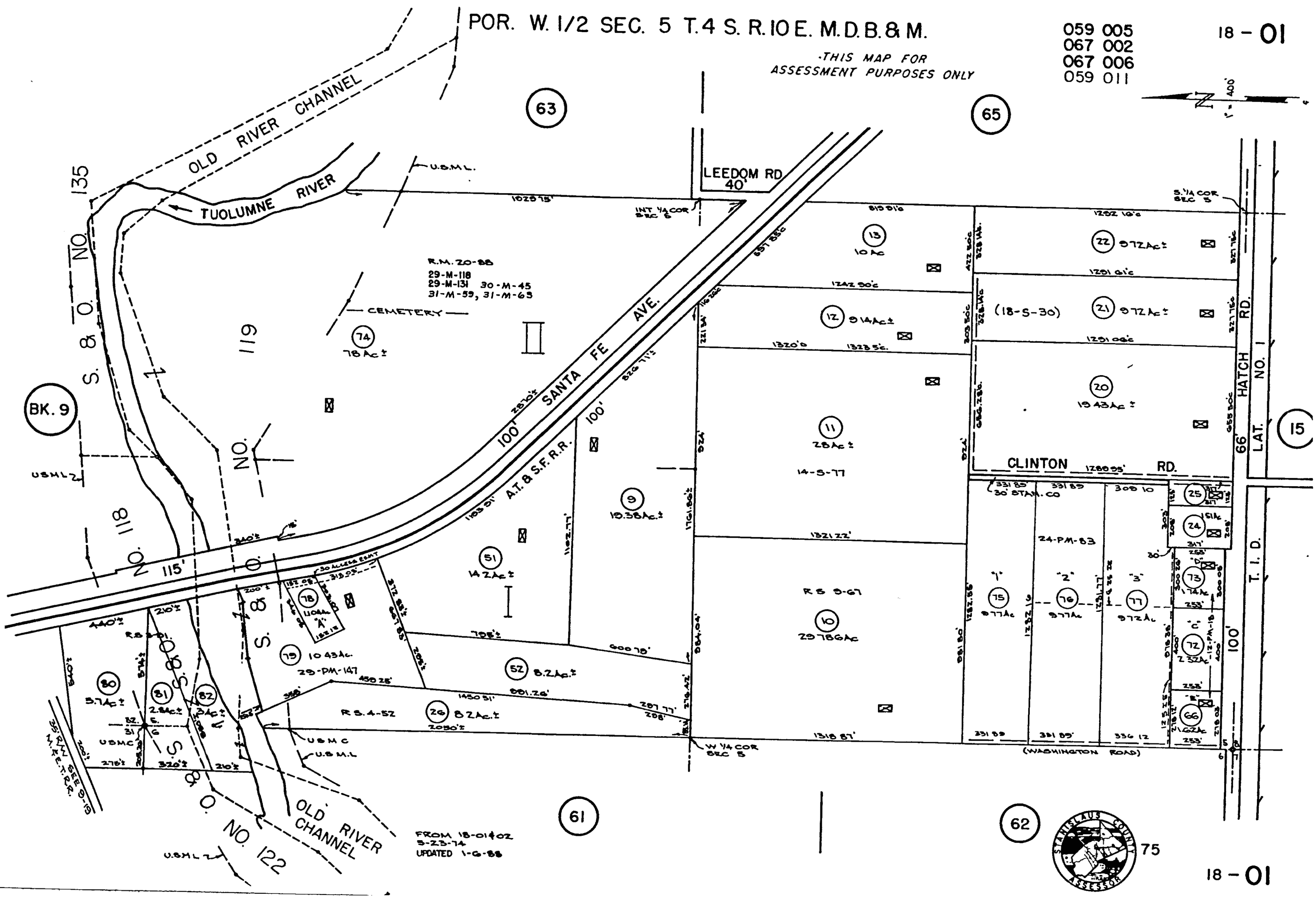


Exhibit G

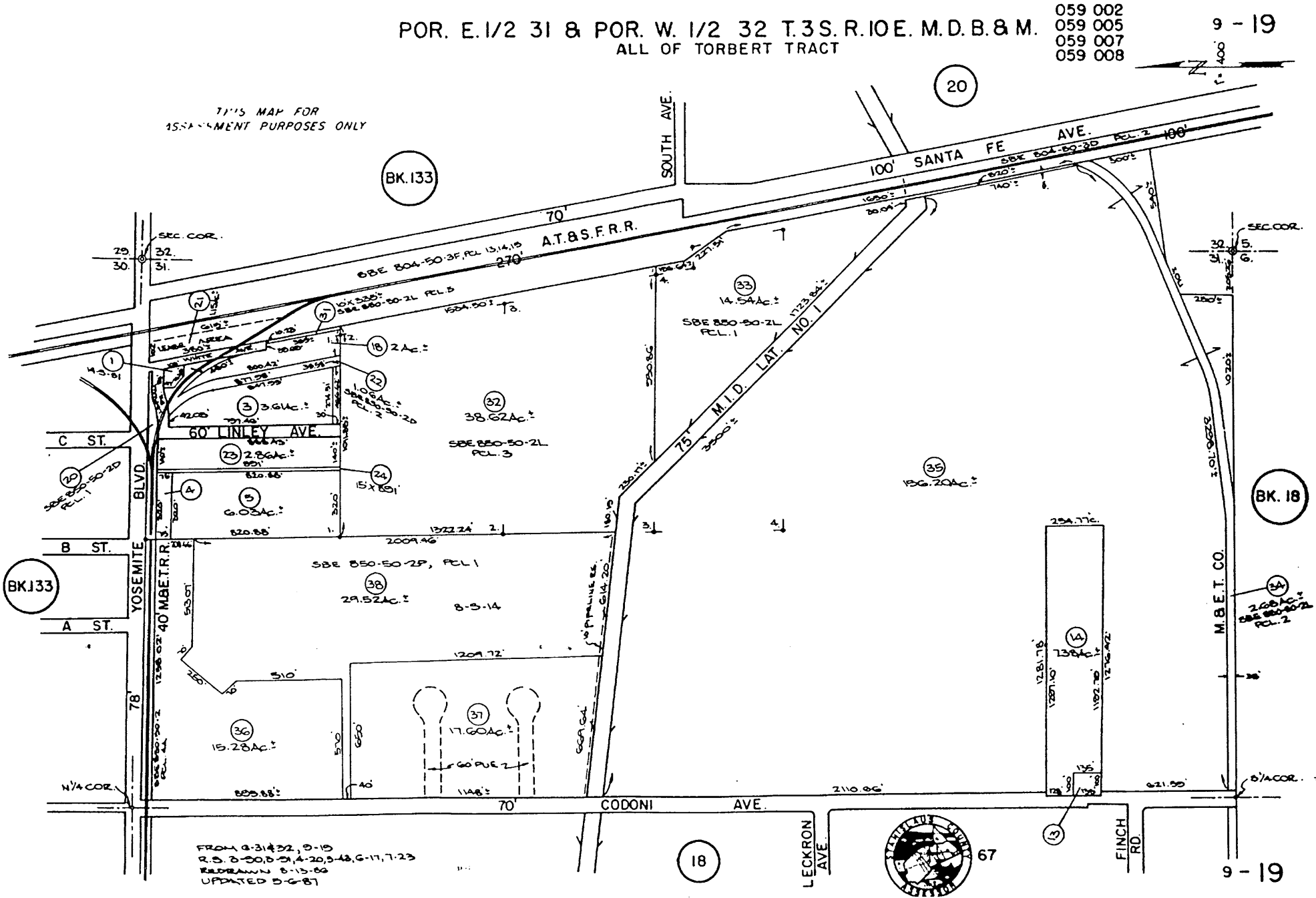
County Assessor Maps


POR. W. 1/2 SEC. 5 T.4 S. R.10 E. M.D.B.& M.
THIS MAP FOR ASSESSMENT PURPOSES ONLY
059 005
067 002
067 006
059 011
18 - 01
63
65
61
62
15
BK. 9
OLD RIVER CHANNEL
TUOLUMNE RIVER
LEEDOM RD
SANTA FE AVE.
A.T.& S.F.R.R.
CEMETERY
R.M. 20-88
29-M-118
29-M-131 30-M-45
31-M-59, 31-M-63
(18-S-30)
14-S-77
CLINTON RD.
HATCH RD.
LAT. NO. 1
T. I. D.
24-PM-83
R S 5-67
R S. 4-52
29-PM-147
(WASHINGTON ROAD)
S. 8 O. NO. 135
S. 8 O. NO. 118
S. 8 O. NO. 122
U.S.M.L.
U.S.M.C
INT 1/4 COR SEC 5
S. 1/4 COR SEC 5
W 1/4 COR SEC 5
FROM 18-01 & 02
5-23-74
UPDATED 1-6-88
STANISLAUS COUNTY ASSESSOR
75
18 - 01

POR. E.1/2 31 & POR. W. 1/2 32 T.3S. R.10E. M.D.B.& M.
ALL OF TORBERT TRACT

059 002
059 005
059 007
059 008

9 - 19



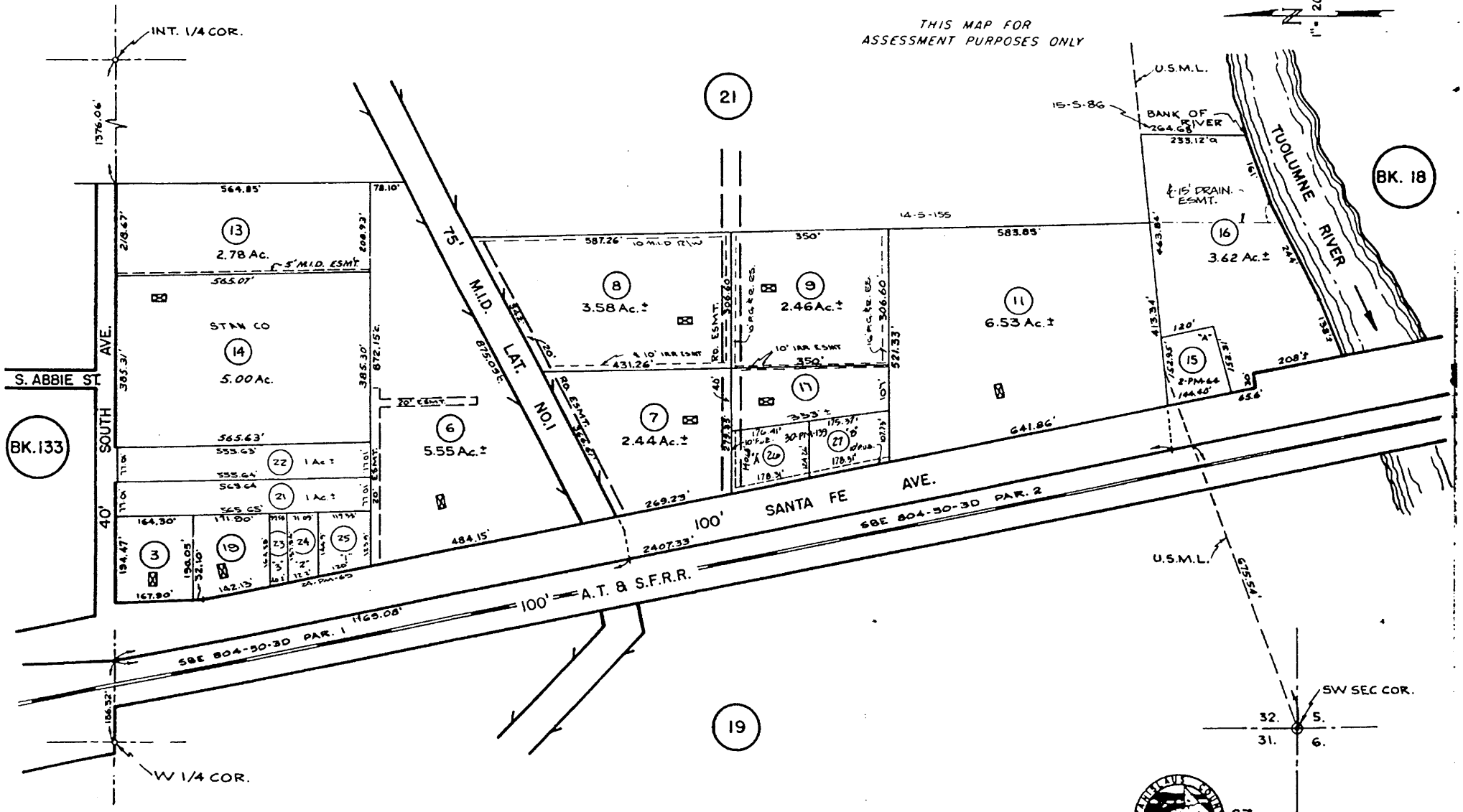
9 - 19

059 002
059 005

9 - 20

PORTION SW 1/4 SECTION 32 T. 3 S. R. 10 E. M. D. B. & M.

THIS MAP FOR
ASSESSMENT PURPOSES ONLY



FROM G-32
R. S. 3-91, 3-116
~~108-809-13~~
2-4-66
REV. 4-5-72 UPDATED 3-1-82

67

9 - 20

WORK PLAN

1. Project Management

This continuous activity commences with the receipt of the Notice to Proceed and continues through submittal of the final project deliverables. Key elements of our project management program include regular progress reports, work progress direction and monitoring, coordination, and communications.

1.1 Progress Monitoring - Dokken Engineering's Project Manager will monitor and direct work activities on this project in accordance with the contracted work scope, schedule, and budget. Regular project team meetings will be held to review work in progress.

1.2 Coordination

1.2.1 The Project "Kick-Off" Meeting will be held within a week of the Notice to Proceed. This meeting should include representatives from, but not be limited to, Stanislaus County Public Works, Dokken Engineering, and subconsultants. The primary objective is to establish project protocol, finalize the project schedule, and identify environmental and technical issues.

1.2.2 Close contact will be maintained between the Project Manager, County, and subconsultant personnel. All team members will be involved in development of the project schedule in order to assure proper coordination of all the required tasks.

1.3 Communications

1.3.1 Progress Reports will be prepared by Dokken Engineering and submitted monthly to the County. These reports will include schedule and budget status by project activity/task, and DBE goal and progress. They will also include a discussion of issues requiring actions or decisions that may impact project deliverables. Schedule will be updated monthly and a printed copy and MS Project electronic file will be submitted to the County if there are changes to the schedule.

1.3.2 Regular communications will be facilitated through the Project Manager. Dokken Engineering staff and other team members will be available to meet with the County or other agency personnel to discuss technical or administrative issues to keep the project on track. Dokken Engineering will coordinate meetings with other agencies, as needed, to resolve project related issues.

1.3.3 Meetings shall be held monthly with the County or as often as deemed necessary by both parties, to ensure understanding of Agreement objectives, to discuss the work schedule and other related issues, and to resolve any problems. Meeting agenda will be coordinated with County prior to meeting. Dokken Engineering will be responsible for meeting minutes.

2. Preliminary Engineering

2.1 Data Gathering - Each member of the consultant team will be responsible for the collection of data relevant to their respective project work. Data gathered shall include Assessor Parcel Maps

and Owners list, County EIR, As-built road plans, As-built bridge plans, County traffic flow maps, utility plans, geotechnical report from strategy, flood studies, etc.

2.2 Dokken Engineering will provide information as requested by the County for their preparation of the "Field Review Form".

2.3 Surveying and Mapping - Thompson-Hysell, Inc. will provide topographic mapping, channel cross-sections for hydrology and hydraulic analysis, and furnish control points.

This task will include:

- Location and surveying of existing monuments and property corners to establish right-of-way location on NAD-83 datum.
- Setting of two first order control points at each end of the project, tied to NAD 83 Datum (horizontal) and NAD 88 Datum (vertical).
- Setting of panel points for aerial photograph, having site flown for updated aerial and developing a digital terrain model, including contours and digital features.
- Every survey sheet shall include datum information.
- Research property owners.
- Letters requesting permission to enter the property for surveying.

Topographic field surveys will include the following:

- Existing bridge location and profile.
- All existing bridge columns/piers and abutments.
- 200 meters beyond both ends of the existing bridge.
- 200 meters from both sides of the existing bridge.
- Tuolumne River: three cross-sections upstream and three cross-sections downstream of bridge and one cross-section at the bridge.
- Existing piers for the railroad bridge.
- Any visible existing utilities, potholing as directed by Dokken Engineering.
- Coordinate, as directed by Dokken Engineering, potholing contractor work.
- Use of Underground Services Alert (USA) to mark existing utilities at the site.
- Locating potential Environmentally Sensitive Areas.

2.4 Utility Coordination - Dokken Engineering will provide topographic mapping developed for the project to utility agencies and companies for identifying and marking locations of utilities. Information provided by the utilities will be incorporated into the project plans. The new bridge can be designed to carry new and relocated utilities, as well as provide openings though bridge for future utilities.

2.5 Geotechnical Investigation and Reports – Taber will perform the required geotechnical investigations and prepare a Geotechnical Report in accordance with Caltrans guidelines and procedures.

2.5.1 Preliminary Foundation Investigation – This initial part of study will be based on readily available data: geologic mapping, site review/reconnaissance and the geotechnical data from seismic strategy evaluation. Taber has already performed field exploration and testing at this site as part of the geotechnical investigation performed for seismological evaluation of the structure. The Preliminary Foundation Report that Taber prepared for the seismic strategy evaluation will be reviewed and updated as needed to address the requirements for the bridge replacement. Existing information appears sufficient to evaluate (confirm) seismic input parameters and the potential for liquifaction, settlement and bank instability associated with seismic loads. The available boring and test data are adequate for preliminary assessment and preliminary recommendations for new foundations.

2.5.2 Field Exploration – Supplemental field exploration and laboratory testing was carried out by Taber in 1997 in order to perform a more thorough evaluation of the foundation conditions for the bridge that included five test borings to depths of up to 121 feet

The field exploration and lab testing performed to date by Taber forms a significant data base from which to do the final bridge foundation design. Some additional field exploration will be required to provide full coverage of the new bridge alignment. The number of borings will depend on the final support configurations; however, it is likely that two additional borings to a depth of 35-45 m depth (below bridge deck) will be adequate. Additional shallower boring will be needed for road reconstruction.

2.5.3 Materials Testing – Taber will complete the following materials testing for use in bridge and pavement structure design for inclusion in the Foundation Report:

- Engineering classification tests
- Moisture Content/Unit Weight
- Unconfined Compression
- R-Value
- Soil corrosivity

2.5.4 Foundation Report – Taber will prepare a Geotechnical Report based on all information obtained. The Report will contain findings and specific recommendations for the bridge foundations, seismic data for structure design, and test results for use in embankment and pavement design in accordance with Caltrans' requirements. The Report will be furnished to the County for review and approval.

2.5.5 Log of Test Borings - Taber will prepare a Log of Test Borings sheet for the bridge site according to Caltrans' specifications. As required by Caltrans, as-built logs of any previous test borings will also accompany the Foundation Report.

2.5.6 Design Review - Taber will review the final foundation design for compliance with foundation recommendations and sign the final Foundation Plan.

2.6 Hydrology/Hydraulic Analysis and Report - WRECO will complete a hydraulic analysis of the bridge site and prepare a Design Hydraulics Study Report.

2.6.1 Data Review - WRECO will obtain and review relevant data from agencies such as Stanislaus County, Caltrans, U.S. Army Corps of Engineers, FEMA and the United States Geologic Survey.

2.6.2 Field Reconnaissance - WRECO will conduct a field reconnaissance to assess existing conditions in vicinity of the project site. WRECO will identify potential hydraulic-related design problems to Dokken. Coordinate the location of river cross sections to be surveyed.

2.6.3 Hydrologic Analysis - WRECO will coordinate with Dokken to obtain design peak discharges from Stanislaus County. No detailed hydrologic study is anticipated. The FEMA Flood Insurance Study identifies 50- and 100- year flood flows along this reach of the Tuolumne River. These flows will be verified for the bridge design.

2.6.4 Hydraulic Analysis - WRECO will perform the hydraulic analysis to study the 50-year (design flood) and 100-year (base flood) bridge hydraulics for both the existing and proposed conditions. The US Army Corps of Engineer's HEC-RAS program will be the primary hydraulic design tool.

2.6.5 Scour and Erosion Analysis - WRECO will perform the bridge scour analysis following the procedures outlined in FHWA's HEC-18 Manual. WRECO will evaluate the long-term aggradation and degradation potential.

2.6.6 Bridge Hydraulic Report - WRECO will prepare a Bridge Hydraulic Report to summarize the findings from hydraulic and scour analyses, including design recommendations. WRECO will make 2 separate submittals (draft and final) of the report.

2.7 Community Involvement Program

2.7.1 Identification of Stakeholders

Dokken Engineering will create a database of property owners, community groups, pertinent governmental entities, and other stakeholders. Among those groups would be the following:

- Property owners, businesses, and residents nearby the project area
- Elected officials and representatives of the Cities of Empire and Hughson, Stanislaus County, school districts and other pertinent local governmental and quasi-governmental bodies in the area
- Pertinent County and Caltrans staff
- Groups representing businesses and agribusiness, e.g., Chambers of Commerce, Building Industry Association of Central California, and the Stanislaus County Farm Bureau
- Safety personnel, e.g., fire and police departments, Office of Emergency Services
- Utilities
- State and federal governmental representatives, e.g., State of California Department of Fish and Game, U. S. Fish and Wildlife, U.S. Army Corps of Engineers, State of

California Department of Water Resources Reclamation Board, California Regional Water Quality Control Board

- Burlington Northern Santa Fe Railway
- Environmental groups, e.g., G.O.A.L. and Audubon Society
- Civic and community groups, e.g. League of Women Voter, and any other entities that may be affected by disruptions in traffic patterns

First-class mail will be sent to each of these groups, inviting them to the public meetings and updating them throughout the life of the project. Dokken Engineering will initiate or respond to personal contacts whenever needed to advance project goals and citizens' desires for information and participation. The stakeholders' list will be updated frequently with names from public meeting sign-ins and from telephone and personal contacts.

2.7.2 Individual and Public Meetings

Before the first public meeting, Dokken Engineering will arrange for one-on-one meetings of the project engineer with individual property owners and representatives of organizations with a keen interest in the project. This approach permits the meeting participants to define and explore their issues in a less formal environment than that of a public meeting. Dokken Engineering will also follow up with individual property and business owners/managers or organizations as needed.

During project design, at least one public meeting in Stanislaus County will be held to inform members of the public of the project and encourage their involvement. These meetings will provide information about, but not be limited to, project design features, environmental mitigation, aesthetics, design status, schedule, financing, safety issues, and eventually, construction means and staging. Dokken Engineering will prepare necessary exhibits for the depiction of proposed roadway and bridge design options. The consultant team will also explain how the project construction may affect members of the public and solicit their ideas on ways to reduce any inconvenience during construction. The meeting will be informal and held in an open house type of format in the early evening. This format allows individuals to examine displays and engage in in-depth discussion with project engineers and County staff on the issues of particular interest to them.

Dokken will attend Supervisor meetings when there is scheduled discussion of issues influencing the project.

2.8 Planning Studies - Alternative alignment geometrics and bridge Advance Planning Studies will be prepared for the bridge site.

2.8.1 Develop geometrics for two (2) roadway alignment alternatives. Alternatives will be:

1) 2 lanes offset upstream (alignment developed will assume railroad trestle has been removed)
2) 1 lane offset upstream and 1 lane offset downstream

One bridge replacement alternative will not require roadway realignment, although it will require temporary roadway detour.

Geometric layouts will be prepared at a 1:500 scale (metric equivalent of 1"=50').

2.8.2 Prepare an Advance Planning Study for three alternative structure locations. Include two (2) alternative structure types: cast-in-place concrete box girder and structural steel I-girder.

Evaluate alternatives based on relative comparisons of such criteria as operational performance, right-of-way requirements, environmental impacts, hydraulics, community and stakeholder concerns, and construction cost.

2.8.3 Dokken Engineering will prepare a brief report detailing the findings of the preliminary studies and recommending a preferred alternative. Cost estimates, layouts, and an Advance Planning Study for each of the alternatives will be included with the report.

3. Environmental Documentation and Technical Studies

3.1 Data Collection/Field Review – In this task, LSA will obtain and review all available documents that will provide environmental information for the Santa Fe Avenue (Empire) Bridge project site. LSA will also conduct a field review to identify potential environmental issues and constraints. A memorandum will be prepared to document the findings of the literature search and field review.

3.2 Prepare Preliminary Environmental Study (PES) – LSA will conduct a Preliminary Environmental Study (PES) as required under Caltrans Local Assistance Procedures Manual (Environmental Procedures), February 1998, for federally funded projects. The PES includes a checklist that establishes the basis for any needed technical studies, and is used to identify the likely environmental clearance. The PES is also used to identify environmental permits that will be needed for the project. While most seismic retrofit projects can be cleared under the Programmatic Categorical Exclusion (CE), in light of the various potential issues associated with this bridge replacement, it is likely the PES process will conclude that an Environmental Assessment (EA)/FONSI will be needed for NEPA clearance. Similarly, the project will probably require a Mitigated Negative Declaration (MND) to address State environmental review processes. Several potentially significant environmental issues will need to be addressed with this project, thus elevating the environmental review process.

3. 3 Technical Studies – LSA will conduct the following technical studies as identified in the PES.

3.3.1 *Floodplain Evaluation Report Summary.* Using the hydraulic study that will be prepared by WRECO, LSA will prepare a Floodplain Evaluation Report Summary. The Floodplain Evaluation Report Summary requires response to six (6) questions regarding potential effects of the project as described in the applicable hydraulic study prepared by WRECO. Negative responses to these questions eliminate the need for any further floodplain studies. Caltrans and/or FHWA must approve the completed summary. Should the project design require the use of fill material to expand or widen the northern bridge approach, there could be a significant change to the floodplain values. Under that scenario, a positive response to the questions may be generated, thus triggering additional analysis to assess the potential effects of the project to downstream conditions. Preparation of the more complete Floodplain Report would likely be required, consistent with the "Complete and Sufficient" review checklist

included in the Local Assistance Procedures Manual. Additional budget may be required.

3.3.2 *Water Quality Study.* The report will evaluate potential water quality impacts of proposed replacement construction and operation of the bridge project on the Tuolumne River. Potential project impacts associated with construction activities, maintenance activities, and roadway runoff will be evaluated. Potential causes of erosion, siltation, and urban pollutants and the effects of these substances on the quality of receiving waters will be evaluated. Mitigation measures, including Best Management Practices specified in Caltrans' *Storm Water Quality Handbook - Planning and Design Guide*, will be identified for any significant water quality impacts that may occur during construction and/or operation of proposed bridge improvements.

3.3.3 *Geotechnical Study.* LSA will summarize the conditions and findings outlined in the geotechnical report. This summary will include information regarding regional and local geology, seismicity, faulting and ground rupture, liquefaction, subsidence, soils conditions, etc. Specific information regarding the design of the bridge replacement project and the recommendations from the geotechnical engineer will be included.

3.3.4 *Biology.* A Natural Environment Study Report (NESR) will be prepared in accordance with Caltrans' Guidance for Consultants (March, 1997). A key objective of the NESR is to identify any special status plant or wildlife species, or sensitive habitats, that may be affected by the project. The Tuolumne River is designated critical habitat for the federally threatened Central Valley steelhead. As a result, the project will require consultation with the National Marine Fisheries Service under Section 7 of the Endangered Species Act, to address project-related impacts to Central Valley steelhead. We have included budget to prepare a Biological Assessment, in accordance with Caltrans' Guidance for Consultants (1997), to evaluate these impacts for use during the Section 7 consultation. A one-day site visit has been included for determining the potential habitat for other special status species.

The project area includes several mature heritage oak trees and other tree species that occur within the riparian corridor. It appears that the site is dominated by an oak woodland plant community which could provide habitat to several special status wildlife species, including the brush rabbit and riparian woodrat. The tall, mature tree canopy could also include nesting opportunities for Swainson's hawk and other raptor species. In addition, elderberry bush species may be present which could support the valley elderberry long-horned beetle. Both these special status species could be present and warrant consultation with the Fish and Wildlife Service and/or Fish and Game.

The NESR will also include a jurisdictional delineation to determine the areas subject to regulation by the U.S. Army Corps of Engineers and/or the California Department of Fish and Game. Impacts to jurisdictional areas are expected to be minimal with this project, and it is not likely compensatory mitigation will be required. Budget to prepare a mitigation plan that may be required to support the regulatory permits has not been included.

3.3.5 *Cultural Resources.* Section 106 documentation will be prepared in accordance with Caltrans' *Guidance for Consultants* (1991). LSA's services include a literature review; a field survey; contact with local historical societies and Native American groups, if deemed necessary; and preparation of the appropriate Caltrans reports.

LSA will coordinate the preparation of an Area of Coverage map and an Area of Potential Effects (APE) map with the project engineer and Caltrans. Per the Caltrans Guidance for Consultants (1991), LSA will develop an APE map that shows the project termini, its right-of-way width, and any easements that may be required for construction or post-construction maintenance. LSA will utilize the base map documents provided by the project engineer (either hard copy or electronic) and add specific mapping requirements.

LSA will conduct an archaeological and historical records review and literature search through the Information Center of the California Historical Resources Information System. The Information Center houses the pertinent archaeological site, survey, and excavation information necessary to determine whether cultural resources exist within the APE.

The records search will include a review of all official national, State, and local historical listings. All pertinent references will be reviewed and summarized in the appropriate reports for Caltrans.

Based on the records search and responses from historical resource inquiries, an intensive, systematic on-site pedestrian survey will be conducted to determine the presence of cultural resources on previously unsurveyed property. If previously recorded sites exist within the APE, these will be field checked, and existing site records will be updated on site forms, consistent with the guidelines established by the State Historic Preservation Office (SHPO).

Our proposed level of effort is based upon negative findings for cultural (historic/prehistoric) resources. The documentation required will be an Historic Property Survey Report [Negative Findings] and a Negative Archaeological Survey Report. The subject bridge (#38C-0003) has been evaluated by Caltrans and determined to be a Category 5 bridge, meaning that it is not historically significant. However, since the bridge is over 50 years old (built in 1947), the bridge must be re-evaluated for historical significance. LSA will provide a re-evaluation for the Historic Property Survey Report. If positive findings are made as a result of the literature review or field survey, additional evaluations will be required to determine potential eligibility of property for the National Register and evaluate the significance of impacts. Additional budget may be required.

3.3.6 *Visual Impact.* LSA will prepare a visual resource assessment for use in describing the differences between the existing bridge and the bridge replacement. This assessment will describe the existing visual characteristics of the bridge project area and any significant proximate visual resources, such as the dense oak woodland canopy and riparian understory. The potential visual impacts from existing bridge architecture will be evaluated through the use of ground-level photographs from viewpoints near the project corridor. View envelopes will be defined to allow comparison of the existing bridge structure under pre- and post-project condition. Visual conditions and bridge impacts will be evaluated based on criteria established at the outset. Impacts will be assessed on viewpoint/envelope sensitivity based on the new bridge design and façade. Mitigation measures will be recommended, if necessary, to reduce any significant impacts. This scope does not provide for the preparation of photo simulations.

3.3.7 *Right-of-Way.* LSA will coordinate with the Cutler & Associates, Inc. (right-of-way consultant) regarding the need to acquire land and/or construction easements. Depending on design options, an alternative may require property takes to accommodate the bridge replacement. For example, one of the alternatives may take a portion of a private residence, as well as frontage from the mortuary property. A description of the take areas, the potential effects of the takes, and any environmental justice issues associated with the takes will be examined.

3.3.8 *Noise.* To the extent that a bridge design option encroaches into lands with sensitive receptors (e.g., residential, mortuary), noise conditions could be an issue. Based on the ambient conditions, the proximity of travel lanes, forecast volumes/ADT, vehicular speed and mix, etc., noise conditions with the new bridge could exceed the State and federal noise standards.

LSA will prepare a Noise Technical Study per Caltrans guidelines and requirements. The technical study will present a description of the existing land uses, existing noise levels, and applicable federal, state, and County of Stanislaus guidelines, ordinances, and regulations.

Sample measurements of ambient noise will be performed by an acoustical specialist to document the existing noise environment. Short-term noise measurements will be recorded at up to four (4) locations using noise level analysis/monitors to characterize the motor vehicle noise environment. The appendix will include a presentation of noise fundamentals.

The Federal Highway Administration *Highway Noise Prediction Model* will be used in the study to analyze noise levels for the Existing and Future Plus Project scenarios. Vehicle mix used for the modeling will be derived from the Caltrans' publication *1994 Annual Average Daily Truck Traffic on the California State Highway System.* Methodologies used and modeling assumptions will be provided.

The appendix will present the modeling input and output files. Traffic data, roadway geometrics, potential sensitive receptor locations, and other site data will be input into the noise model. Construction noise impacts on adjacent noise-sensitive land uses from stationary and mobile equipment will be addressed. Quantitative estimates of construction noise impacts on nearby sensitive receptors will also be made. Mitigation measures designed to reduce short- and long-term impacts to acceptable noise levels for noise-sensitive land uses will be discussed where necessary. Both an evaluation of the mitigation measures and a discussion of their effectiveness will be provided.

3.4. Environmental Documents

3.4.1 *Prepare Administrative Draft Initial Study/Environmental Assessment.* LSA will prepare a combined Initial Study (IS) and Environmental Assessment (EA) for compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). LSA will submit five (5) copies of the administrative draft IS/EA for review by the County. LSA will also submit for review a total of two (2) copies each of the administrative draft technical studies (as described above) to the County and three (3) copies to Caltrans.

3.4.2 *Prepare Screen Check Draft IS/EA.* Following review by the County and Caltrans, LSA will prepare a screen check draft IS/EA in redline/strike-out illustrating the changes. Two (2) copies of the screen check draft IS/EA will be submitted to the County for review, and three (3) copies to Caltrans.

3.4.3 *Prepare Draft IS for Public Review.* The purpose of this task will be to respond to County/Caltrans comments on the screen check draft IS, complete necessary revisions, submit the document for County/Caltrans approval, and publish for public review. In order to obtain approval to circulate, LSA must first complete coordination efforts with the appropriate State and federal agencies having jurisdiction over the project and receive approval to circulate from Caltrans and FHWA. LSA will print a total of twenty-five (25) copies of the draft IS/EA for distribution by the County and Caltrans. LSA will distribute an additional fifteen (15) draft documents to the State Clearinghouse. The County will be responsible for all other non-State distributions.

LSA will prepare a draft public notice regarding the availability of the Draft IS/EA for public review. LSA will also submit a total of ten (10) copies each of the draft technical studies to the County [five (5) copies] and Caltrans [five (5) copies]. Additional technical studies (generally 2-3 copies) will be submitted to the State Clearinghouse for distribution to specific technical State agencies.

During the public review period, LSA will attend one (1) community meeting and be available for responding to questions and answers from members of the public.

3.4.4 *Prepare Draft Final ND/EA.* The purpose of this task will be to prepare a draft Final Negative Declaration (ND)/EA consisting of written responses to comments received on the Draft IS/EA, a Mitigation and Monitoring Program, and Finding of Significance. LSA will prepare written responses to comments received on the Draft IS/EA; each response will include the specific comment that elicited the response. For purposes of this scope of services, a total of 16 hours of professional staff time has been allocated to the preparation of responses to comments. Should preparation of the responses involve additional time, an adjustment to the budget may be required. A Mitigation Monitoring Program/CEQA Findings will be included as a component. The program will be typical County formatting and include the appropriate elements. LSA will submit five (5) copies of the draft Final ND/EA for County/Caltrans review.

3.4.5 *Prepare Final ND.* LSA will finalize the document (per County/Caltrans comments) and incorporate them into the IS/EA. LSA will submit one master document for approval of the ND by the County. Following approval of the ND, LSA will submit ten (10) copies of the approved Final ND for distribution to the County, as well as any agencies that commented on the Draft IS. Similarly, LSA will submit five (5) copies of the Finding of No Significant Impact (FONSI) to Caltrans for shared distribution with FHWA.

4. Permitting

LSA will prepare documentation and permit applications in coordination with the County to acquire the following environmental permits that are likely to be required for this project:

4.1 *Nationwide Permit Verification (Clean Water Act, Section 404)* - The bridge replacement will result in discharge of material into waters of the U.S. As a result, the project will require

authorization from the Army Corps of Engineers (Corps). It is likely that this project can be authorized using one or more Nationwide Permits (NWP). LSA will prepare a Preconstruction Notification (PCN) to submit to the Corps requesting verification that the project can be authorized using the specified NWP(s). The PCN includes a project description and other relevant information used by the Corps to evaluate the project.

4.2 *Water Quality Certification (Clean Water Act, Section 401)* - A Water Quality Certification or Waiver will be required from the Central Valley Regional Water Quality Control Board (CVRWQCB) for the replacement of the Santa Fe Avenue Bridge. LSA will prepare an application for Water Quality Certification that will include a project location map, design plans, and evidence of local CEQA approval (i.e., Mitigated Negative Declaration). It will also be necessary to transmit a copy of the completed Streambed Alteration Agreement to the CVRWQCB before they will issue a Certification or Waiver. In addition, a $500 processing fee (to be provided by the County) must be submitted with the application.

4.3 *Streambed Alteration Agreement (Fish and Game Code, Section 1601)* - The bridge replacement will require notification of proposed streambed alteration to the California Department of Fish and Game (CDFG). We will prepare a Notification of Streambed Alteration and Project Questionnaire, and include a project location map, design plans, and evidence of CEQA approval (i.e., Mitigated Negative Declaration) for submittal to CDFG. In addition, a processing fee (to be provided by the County, amount to be determined) must be included with the submittal. We have budgeted for one field meeting to meet with the CDFG biologist or warden, if necessary.

5. Right-of-Way

5.1. Right-of-Way Requirements - Upon approval of the Bridge General Plan, Dokken Engineering will determine right-of-way/construction easement requirements based on the approved design.

5.2. Right-of-Way Engineering – Thompson-Hysell, Inc. will complete any required right-of-way engineering, including obtaining title reports, vesting deeds, preparation of plats and legal descriptions for required right-of-way acquisition and temporary construction easements.

5.3. Request For Authorization – Provide ROW information required for Request For Authorization.

5.4. Right-of-Way Appraisal & Acquisition – Cutler & Associates will perform right-of-way acquisition and coordinate the appraisal and review appraisal and relocation assistance services needed to obtain necessary right-of-way and temporary construction easements for the project. Services to be included in this task are right-of-way estimates, prepare offer letters, negotiate purchases, prepare acquisition agreements and deeds, securing rights of entry and preparing right-of-way certifications as required for the project. A diary will be maintained of all pertinent information and contacts concerning the project parcels.

6. Design

Concurrent with obtaining approval of the environmental documentation, Dokken Engineering will proceed with completion of the plans, specifications and estimate for the project in order to expedite the schedule for completion of the project.

6.1 35% Design - Bridge General Plan and Roadway Geometric Design

6.1.1 Bridge General Plans - Dokken Engineering will prepare the Bridge General Plans for the selected bridge types. The Bridge General Plans will be prepared at a scale of 1:200 (metric equivalent of 1"=20').

6.1.2 Roadway Geometric Design - Dokken Engineering will prepare preliminary roadway geometric design drawings for the project. These drawings will include layouts, profiles, and typical sections, superelevation, stage construction, conceptual drainage, and survey base maps. These preliminary roadway drawings will be prepared at a scale of 1:500 (metric equivalent of 1"=50').

6.1.3 Utility Coordination - Dokken Engineering will coordinate with utility companies to relocate or protect facilities in place as necessary.

6.1.4 Review and Approval - The Bridge General Plan and Roadway Geometric Drawings will be furnished to the County for review and approval.

Dokken Engineering will submit upon completion of 35% design work:

- "Structure Type Selection"
- Ten (10) copies of 11"x17" General Plan, General Plan Estimate, Type Selection Memo, Vicinity Map,
- Ten (10) copies of 11"x17" Roadway Plan, Profile, Superelevation, Typical Sections, & Stage Construction.
- Two (2) copies of the Hydrology Report

After Approval of General Plan

- Ten (10) copies of 11"x17" General Plan incorporating County comments

6.2. 65% Design - Draft Plans, Specifications and Estimate (PS&E)

6.2.1 Design Standards – Design will conform to Chapter 11, "Design Standards," of the Local Assistance Procedures Manual. PS&E will be prepared in metric units in accordance with chapter 12, "Plans, Specifications, & Estimate," of the Local Assistance Procedures Manual.

6.2.2 Bridge Design/Plans - Upon approval of the Bridge General Plans, Dokken Engineering will complete the design calculations for the replacement structure in accordance with Caltrans Bridge Design Manuals, incorporating recommendations from the Design Hydraulics Study Report, the Foundation Report, environmental documents, and permit requirements. A full set of detailed bridge plans will be prepared, including, as necessary, deck contours, foundation plan, typical section, abutment layout and details, girder layout and reinforcement, railing details, and Log of Test Borings. A separate set of independent check calculations will be prepared by Dokken Engineering based on the completed bridge plans. All bridge plans will be prepared using computer aided drafting. All sheets will have datum information. Electronic plan files will be provided to the County in AutoCAD 14 format with County standard color coding for line thickness.

6.2.3 Roadway Design/Plans - Upon completion of the necessary mapping and field surveys, and based upon preliminary design approved by the County/Caltrans, Dokken Engineering will prepare a geometric base map, preliminary layouts, profiles, and Superelevation diagrams. These plan sheets will be prepared in accordance with Caltrans Drafting Plans Manual, CADD User's Manual, and the Standard Plans, dated July 1995. The layouts will include calculated horizontal alignment at a scale of 1:500 (metric); the profiles will include calculated vertical alignment at a scale of 1:500 horizontal and 1:50 vertical; Superelevation diagrams will be prepared at 1:500 horizontal and will conform to requirements established in Caltrans Highway Design manual, topic 202. Typical cross sections will be prepared for proposed roadway improvements on Santa Fe Avenue approaches. Preliminary design cross sections will be generated at 20-meter intervals. Sections will also be provided at major drainage structures and at the beginning and end of each horizontal and vertical curve. Drainage Calculations and a drainage report will be prepared for Drainage pipes that will be relocated. All sheets will have datum information. Electronic plan files will be provided to the County in AutoCAD 14 format with County standard color coding for line thickness.

Road Plans will include:

- Title Sheet
- Typical Cross Sections
- Layout, Profile, and Superelevation Diagrams
- Construction Details
- Grid Grades
- Drainage Plan, Profile, Details, and Quantities
- Sanitary Sewer Details if relocation is required
- Wet Utility Plans and Details
- Utility Plan of overall utility layout
- Construction Area Signs
- Pavement Delineation Plans, Details, and Quantities
- Summary of Quantities
- Sign Plans, Details, and Quantities

Stage Construction and Traffic Handling Plans – Dokken Engineering will prepare plans for stage construction and traffic handling for all construction stages.

6.2.4 Environmental Mitigation Plans and Specifications - Construction documents will include planting plans for specific plant species, cover crop seed mixes, construction details, specifications, notes, special provisions, and protection provisions for Environmentally Sensitive Areas.

6.2.5 Railroad Coordination – Dokken Engineering will Coordinate Burlington Northern Santa Fe Railway reviews and incorporate resolution to comments.

6.2.6 Utility Coordination - Dokken Engineering will coordinate with utility companies to relocate or protect facilities in place as necessary. Dokken Engineering will provide information requested by the County to process a Request for Authorization for Utility Relocation.

6.2.7 Technical Specifications - Dokken Engineering will provide technical specifications based on Caltrans' Standard Special Provisions for County Review.

6.2.8 Submittal and Review - Dokken Engineering will prepare and furnish the draft Plans and Estimate for the proposed bridge replacement to the County for review and approval.

Dokken Engineering will submit upon completion of 65% design work:

- Two (2) sets of full sized 24"x36" print of the complete plans
- Ten (10) sets of 11"x17" prints of complete plans
- Two (2) copies of technical Specifications
- One (1) copy of the Engineers Estimate
- Two (2) Foundation Reports
- Two (2) Copies of the Traffic Management Plan
- The County's original red-lined set of comments

6.3 95% Design - Plans, Specifications and Estimate (PS&E)

6.3.1 Bridge Independent Design Check - Upon review of the 65% Bridge Plans, CCS Planning and Engineering, Inc. will provide an independent design check of the Bridge plans. The independent check will confirm structural adequacy and assure that details are complete and constructable.

6.3.2 Utilities - Dokken Engineering will coordinate with affected utilities.

6.3.3 Aesthetics - Dokken Engineering will coordinate with the County and incorporate agreed upon aesthetics features and comment resolution.

6.3.4 Specifications - Dokken Engineering will prepare Special Provisions for the project based on Caltrans' Standard Special Provisions and Standard Specifications. These will be modified, where appropriate, to meet County standards and requirements. Specifications will be in WORD format.

6.3.5 Engineer's Estimate - Dokken Engineering will prepare separate Engineer's Estimates for the participating and non-participating portions of the project. Engineer's Estimates will be prepared using local unit costs furnished by the County or included in the latest Caltrans Cost Data Book. The Engineer's Estimate will be prepared in the "BEES" format as well as in an Excel format.

6.3.6 Calculations – Dokken Engineering will provide design and design check calculations for Agency review. Calculations will include joint movement calculations forms.

6.3.7 Quantities – Dokken Engineering will provide Quantity and Quantity check calculations.

6.3.8 Resident Engineer's File - Dokken Engineering will prepare a Resident Engineer's Pending File in accordance with the EFPB Information and Procedures Guide 4-2, and PDPM

6.3.9 Submittal and Review - Dokken Engineering will prepare and furnish the Plans, Complete Specifications, and Estimate for the proposed bridge replacement to the County for review and approval, and to Caltrans for review and comment.

Dokken Engineering will submit upon completion of 95% design:

- Two (2) sets of full sized 24"x36" prints of complete plans
- Ten (10) copies of 11"x17" prints of complete plans
- Two (2) hard copies and 1 disk of the Boiler Plate and Special Provisions
- One (1) Marginal Estimate
- One (1) Working day schedule
- The Stanislaus County's original red-lined set of PS&E comments

6.4 Final Plans, Specifications and Estimate (PS&E)

6.4.1 Design Review Meeting - Upon receipt of comments, and prior to commencing revisions, Dokken Engineering will schedule a review session, if required, with the County to confirm intent of comments.

6.4.2 Specifications - Dokken Engineering will modify the Boiler Plate for a local agency project.

6.4.3 Final Submittal - Dokken Engineering will furnish Final Plans, Specifications and Estimate for advertising, as well as hard copy and electronic files of spreadsheets used to create the estimates. PS&E will incorporate resolution of 95% comments from reviewing agencies. This task will include preparation of the Resident Engineers Pending File (RE File).

Dokken Engineering will submit upon completion of Final PS&E:

- One (1) set of Full size Vellum Original Tracing
- One (1) set of Full size Bond Original Tracing
- One (1) set of (11"x17") design plans
- One (1) set of drawings on disk in AutoCAD Release 14 format
- Two (2) hard copies of the Contract Specifications
- One (1) disk of the Contract Specifications in Microsoft Word format
- One (1) 1 to 50 scale drawing of the Deck Contours
- One (1) Marginal Estimates
- One (1) Design and Design Check Calculations
- One (1) Quantity and Quantity Check Calculations
- One (1) Working day schedule
- One (1) RE Pending File

6.4 *PS&E Certification* - Dokken Engineering will complete and submit the PS&E Certification & Checklist, in accordance with the Local Assistance Procedures Manual, for the County's use.

6.5 *Request for Authorization* - Dokken Engineering will provide information requested by the County for their preparation of the Request for Authorization for Construction.

6.6 *Bidding/Award Assistance* - Dokken Engineering will provide on-going consultation and interpretation of construction documents during the construction of the proposed project including answering and documenting questions from prospective bidders, preparation of addenda (if required), and bid analysis as requested.

7. *Construction Support*

Dokken Engineering will provide on-going consultation and interpretation of construction documents during the construction of the proposed project. Construction support services will include:

- Attend pre-construction meeting
- Review and approve all submittals and shop drawings
- Provide on-going consultation and interpretation of contract documents, as requested
- Prepare plan and/or specification modification for contract change orders
- Site visits as requested

8. *As Built Plans*

Dokken Engineering will prepare and deliver the final As-Built Plans to the County using marked prints provided by the Construction Resident Engineer. Electronic plan files will be in AutoCAD 14 format.

Quality Control – The Project Manager recognizes that Dokken Engineering is responsible, as prime consultant, for the quality of the project deliverables, whether they are prepared by Dokken Engineering staff or by another firm on the project team. For that reason, the Project Manager will prepare a Quality Control Plan that will be adopted by all parties on the Dokken Engineering team. The Quality Control Plan will be submitted to the Stanislaus County for review and comment. All work will be done in accordance with Stanislaus County, and Caltrans standards and guidelines.

Stanislaus County
Santa Fe Avenue Bridge Replacement

Seismic Safety Project

DOKKEN ENGINEERING

ID	Task Name	Duration
1	**Notice to Proceed**	0 days
2	**Kickoff Meeting**	0 days
3	**2 Preliminary Engineering**	176 days
4	2.1 Data Gathering	2 wks
5	2.2 Field Review Form	1 wk
6	2.3 Surveying and Mapping	16 wks
7	2.4 Utility Coordination	2 wks
8	2.5 Geotechnical Investigation and Report	10 wks
9	2.6 Hydrology / Hydraulic Analysis and Report	6 wks
10	2.8 Develop Alternative Alignments	4 wks
11	County Review/Approval	2 wks
12	2.8 Bridge AP Studies & Report	4 wks
13	2.8 Develop Cost Estimates and Summary Report	2 wks
14	7 Quality Control Review	3 days
15	County Review/Approval	5.6 wks
16	5.2 Preliminary Right-of-Way Work	2 wks
17	County / Caltrans Review of Prelim. ROW	4 wks
18	**3 Environmental Analysis**	273 days
19	3.1 Data Collection / Site Review	4 wks
20	3.2 Preliminary Environmental Study (PES) / Field Meeting	4 wks
21	3.3 Prepare NESR	12 wks
22	3.3 Prepare APE	12 wks
23	3.3 Prepare ASR & HPSR	10 wks
24	3.3 Prepare Floodplain Risk Assessment	2 wks
25	3.4 Prepare Admin Draft IS/EA	3 wks
26	3.3 Internal Review	3 days
27	County Review	3 wks
28	Public Notice files with County	0 wks
29	Supervisor's Meeting	0 wks
30	Caltrans Review	6 wks
31	3.3 Finalize ASR, HPSR and NESR Documents	1 day
32	3.4 Prepare Screen Check Draft IS/EA	1 wk
33	County/Caltrans Review	3 wks
34	3.4 Prepare Draft IS/EA for public review	1 wk
35	Public Review/Agency Consultation	10 wks
36	3.4 Prepare Draft Final ND/EA	2 wks
37	County/Caltrans Review	3 wks
38	3.4 Finalize Environmental Documents	1 wk
39	Caltrans/FHWA Review & Approval	3 wks
40	Request For Autorization for Right of Way	6 wks
41	Request For Autorization for Utility Relocation	6 wks
42	3.5 Obtain Permits	12 wks
43	**4 Other Permits**	1 wk
44	5 Determine R/W Needs and/or Need for Const Easements	165 days
45	5.3 Develop R/W Mapping for R/W and/or Easements	2 wks
46	5.2 Submit R/W Requirements for R/W and/or Easements	0 days
47	County Review/Approval	4 wks
48	5.4 Right of Way Negotiations and Acquisition	16 wks
49	**6 Design**	265 days
50	**6.1 35% Submittal - Geometrics, GP & Type Selection**	40 days
51	Bridge General Plan & Type Selection	3 wks
52	Roadway Geometrics	4 wks
53	Utility Coordination	2 wks
54	Quality Control Review	1 wk
55	35% Review by County	3 wks
56	**6.2 65% Submittal - Unchecked Design**	95 days
57	Bridge Design/Plans	13 wks
58	Roadway Design Plans	9.4 wks
59	Utility Coordination	4 wks
60	Technical Special Provisions	2 wks
61	Engineers Estimate	1 wk
62	65% Quality Control Review	1 wk
63	65% PS&E Review / Comment County	3 wks
64	Caltrans Informal Review	3 wks
65	**6.3 95% Submittal - Independent Design Check**	100 days
66	Address Review Comments	2 wks
67	Independent Check - Bridge Plans	8 wks
68	Utility Coordination	1 wk
69	Quantities and Estimate	2 wks
70	Complete Specifications	2 wks
71	Prepare 95% PS&E	2 wks
72	95% Quality Control Review	1 wk
73	95% PS&E Submittal	0 days
74	Caltrans / County Review	4 wks
75	**6.4 - Final PS&E**	30 days
76	Incorporate Caltrans / County Comments	2 wks
77	Final PS&E Submittal	0 days
78	County Approval	2 wks
79	Prepare Contract Bid Documents	2 wks
80	**7 Provide Info for PS&E Certification**	1 wk
81	**8 Request for Authorization**	40 days
82	Provide Information for Request For Authorization	2 wks
83	County Submit Request For Authorization	0 days
84	Caltrans Approve Request for Authorization	6 wks
85	**9 Bid Process phase - Funding Authorization**	40 days
86	Advertise Contract	4 wks
87	Bidding Assistance	6 wks
88	Award Contract	2 wks
89	**10 Construction Support**	0 days
90	**11 Prepare As - Builts**	0 days

Date Revised: 01/05/00
Date Plotted: 8/21/00

Task · Progress · Milestone · Summary · Split · External · Right Of Way · Agency Review

2240 Schedule082300.mpp

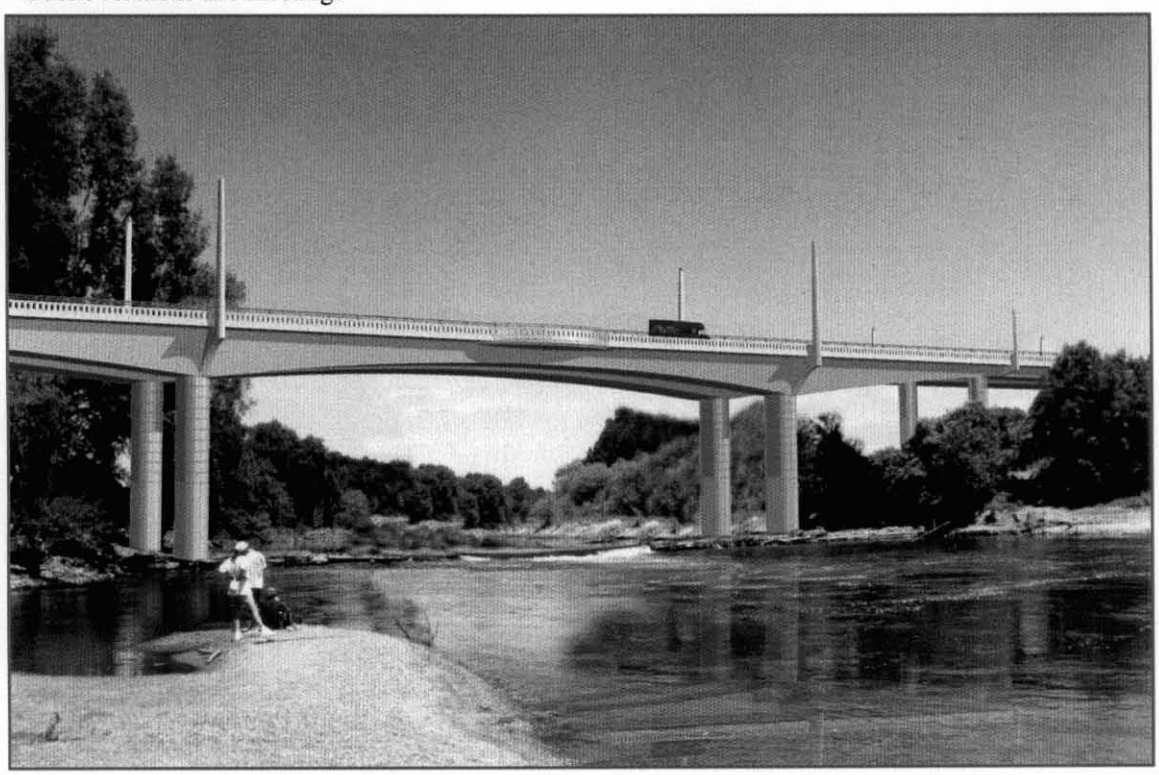
9TH STREET BRIDGE REPLACEMENT (SEISMIC SAFETY PROJECT) — MODESTO, CA

Dokken Engineering is providing the preliminary engineering and final plans, specifications and estimates for the replacement of the 9th Street Bridge over the Tuolumne River for the City of Modesto. Dokken Engineering initially provided seismic analysis and retrofit strategy for this bridge. The seismic analysis found liquefaction to be the major problem and the most cost-effective retrofit strategy was replacement. The replacement structure will be 629m long and 24.3m wide. The bridge will remain open during construction using staging to accommodate local traffic. Dokken Engineering is currently coordinating design issues with the City of Modesto and Stanislaus County. This project is on schedule and on budget.

Since the bridge will be a gateway to the community and will pass over an important future regional park, the bridge required consideration and development of a variety of aesthetic features. Aesthetic features included arched girders, pedestrian overlooks at the river, unique column treatments, forecourt treatment, and lighting supports, standards and luminaires. Development of the aesthetics features required coordination with and gaining the acceptance of a three-agency partnership overseeing development of the future regional park.

The Dokken Engineering team is providing the following services:

- Bridge PS&E
- Roadway modification PS&E
- Environmental
- Surveying and mapping
- Geotechnical Investigation
- Hydraulics/scour evaluation
- Public relations and meetings
- Utility Relocation
- Aesthetics
- Seismic Evaluation
- Traffic Control
- Signing and Striping
- Drainage design
- Lighting
- Staged Construction
- Coordination with Caltrans and local agencies
- Coordination with impacted property and business owners



Location: City of Modesto

Owner: City of Modesto
Stanislaus County

Client: City of Modesto
801 - 11th Street, 2nd Floor
Modesto, CA 95353

Contact: Mr. Rich Ulm, P.E.
Senior Civil Engineer
(209) 577-5261

Prime Consultant: Dokken Engineering

Construction Value: $23 million

PS&E Completed: 2001 (Est.)

Construction Completed: 2003 (Est.)

DOKKEN ENGINEERING

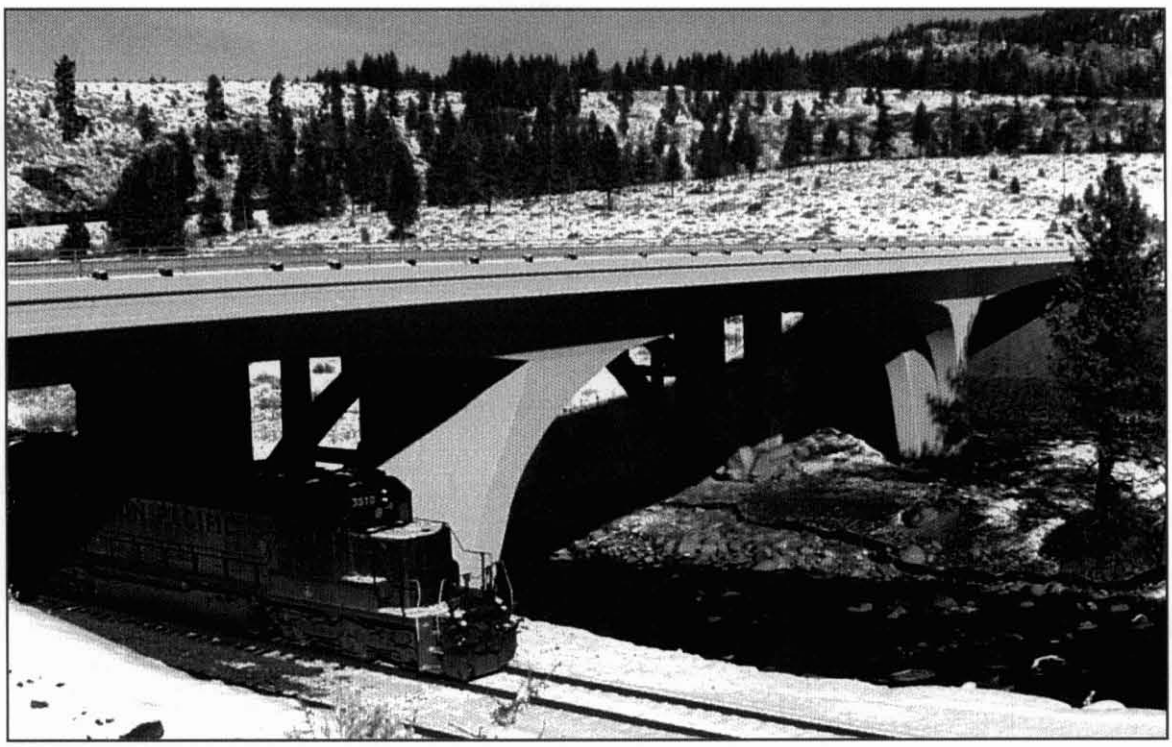
GLENSHIRE DRIVE BRIDGE REPLACEMENT — TOWN OF TRUCKEE, CA

Dokken Engineering completed the Plans, Specifications and Estimate (PS&E) for replacement of a 121-meter long open spandrel arch bridge connecting the Glenshire community with the Town of Truckee. The existing bridge, which crosses both the Union Pacific Transportation Company tracks and the Truckee River, was constructed in 1925. The PS&E for the project was prepared using metric units. Design was done on an accelerated basis to have the construction contract ready to advertise as soon as environmental documentation was approved and right-of-way was obtained.

Dokken Engineering developed alignment and bridge type alternatives for consideration. Each of the alternatives was presented to the public as engineering drawings and architectural renderings at a project open house. Dokken Engineering staff, subconsultants and representatives of the Town attended the open house to discuss the project "one-on-one" with residents and other interested parties. As a result of public input at the open house and subsequent Town council hearings, the three span haunch girder design with sloping columns was selected as the preferred alternative.

The 127m long by 13.1m wide replacement structure was constructed on a new alignment immediately upstream of the existing bridge. This alternative was chosen to maintain traffic on Glenshire Drive during construction of the replacement structure. In order to maintain the design speed for Glenshire Drive, it was necessary to realign approximately 650 meters of approach roadways. Dokken Engineering worked with the Town to obtain additional funding from the HBRR program to cover the cost of the necessary realignment. The Dokken Engineering team provided the following services:

- Coordination with HBRR funding
- Alignment and bridge type alternatives
- Public meetings
- Bridge PS&E
- Roadway PS&E
- Field surveying
- Geotechnical investigation
- Hydrology/hydraulic investigation
- Drainage design
- Utility plans
- Construction support



Location: Truckee, CA

Owner/Client: Town of Truckee
11570 Donner Pass Road
Truckee, CA 96035

Contact: Daniel Wilkens
(530) 582-7700

Prime Consultant: Dokken Engineering

Construction Value: $3.9 Million

PS&E Completed: 1997

Construction Completed: 1999

DOKKEN ENGINEERING

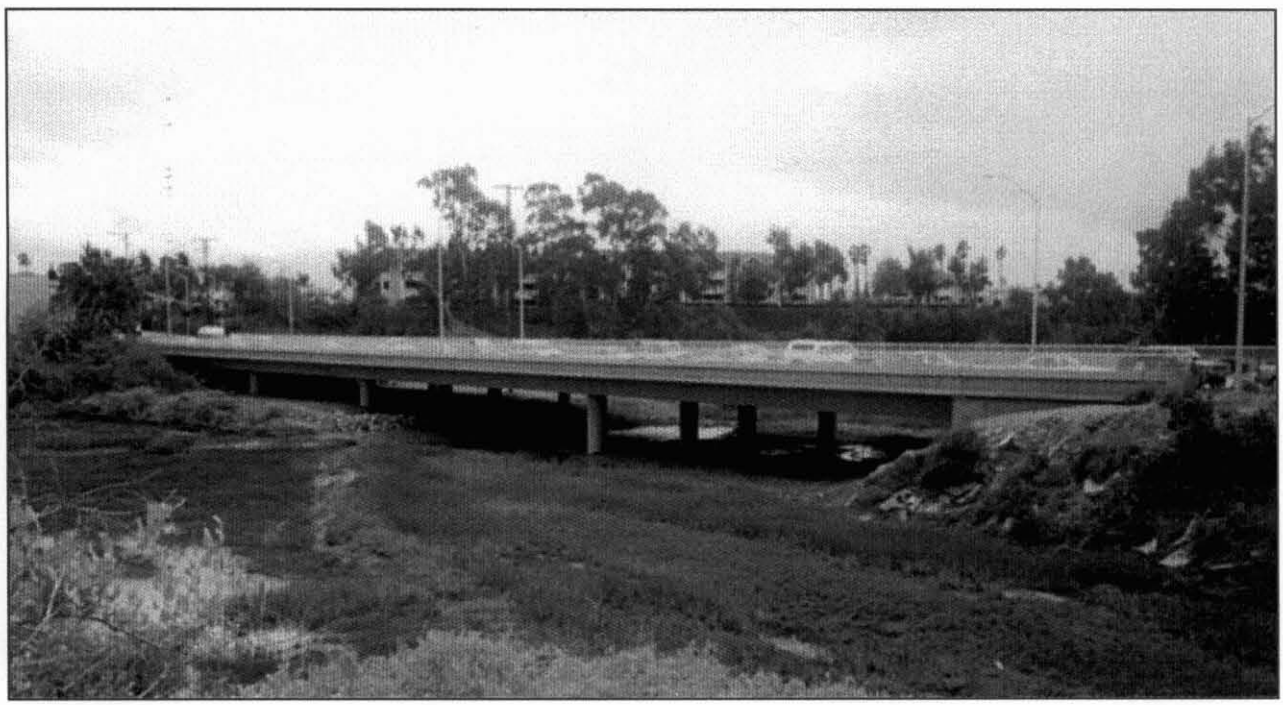
National City Boulevard Bridge Replacement — National City, CA

Dokken Engineering prepared the Plans, Specifications, and Estimate and provided construction management and inspection services for the replacement of the existing National City Boulevard Bridge at the Old Sweetwater River Channel. The existing bridge, which carries over 21,000 vehicles per day, was a wooden multi-span structure supported on timber pile bents. The structure spans a creek that carries overflow water from the Sweetwater Channel, in addition to storm water runoff and year round ocean tidal flow. The bridge was replaced using funding from the Federal Highway Bridge Rehabilitation and Replacement (HBRR) program with Caltrans oversight.

The replacement structure is a four-span prestressed concrete box girder bridge. The new bridge which is approximately 375' long and 80' wide, was built in two stages to maintain traffic on National City Boulevard during construction. Traffic drove on half of the existing bridge during construction of Stage 1. The project also required the reconstruction of the approaches to adjacent intersections.

The Dokken Engineering team provided:

- Project management
- Concept development
- Topographic mapping
- Design surveys
- Bridge type selection and design
- Approach roadway design
- Construction staging and traffic control
- Environmental studies and documentation
- Salt marsh mitigation plans
- Surveying
- Right-of-way engineering
- Environmental documentation
- Traffic engineering
- Geotechnical investigation and foundation report
- Hydraulic analysis and report
- Plans, Specifications and Estimate
- Construction management and inspection



Location:	National City, CA	***Prime Consultant:***	Dokken Engineering
Owner/Client:	City of National City 1243 National City Boulevard National City, CA 91950-4397	***Construction Value:***	$3.2 Million
		PS&E Completed:	1997
Contact:	Burt Myers, P.E. City Engineer (619) 336-4380	***Construction Completed:***	1999

DOKKEN ENGINEERING

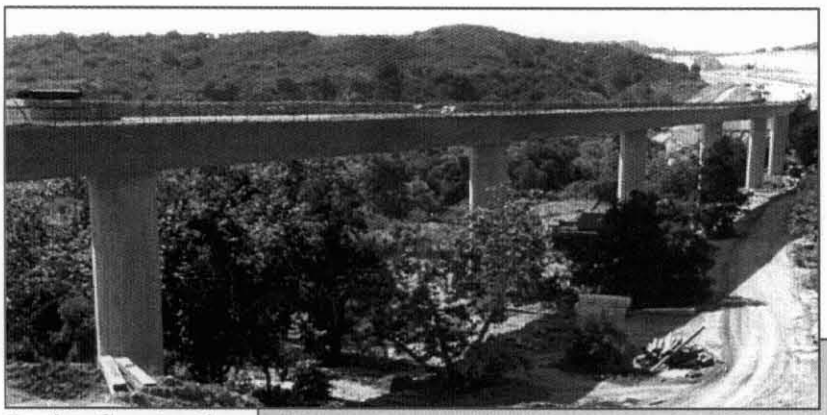
TRABUCO CREEK BRIDGES FOOTHILL CORRIDOR — ORANGE COUNTY, CA

Dokken Engineering was the prime bridge design consultant to the Orange County Transportation Corridor Agencies. Dokken Engineering prepared the advance planning study and developed Plans, Specifications and Estimates (PS&E) for the Foothill Corridor Bridge crossing of Trabuco Creek. The bridge crossing consisted of two parallel bridges, eight-span, cast-in-place, prestressed concrete box girder structures supported on large diameter pile shafts. Each structure is approximately 1,400' long and 44' wide.

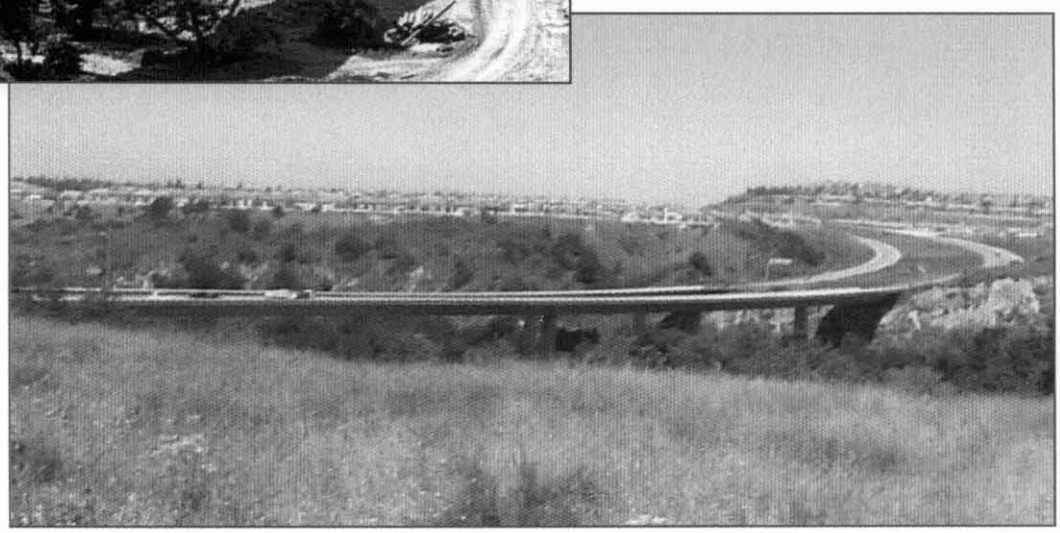
The foundations were very large diameter (13') CIDH piles. The structures were designed for both an upper and a special lower level earthquake. Since the bridge crossed high over a recreational park, the bridge was laid out to preserve as many of the existing trees as possible.

The Dokken Engineering team provided the following services:

- Project administration and coordination
- Surveying and mapping
- Geotechnical investigations and analysis
- Environmental mitigations
- Hydrology and hydraulic analysis
- Scour analysis
- Preliminary and final roadway and bridge geometric design
- Drainage design
- Bridge structure design
- Preparation of PS&E



During Construction



Finished Bridge

Location:	Orange County, CA	***Prime Consultant:***	Dokken Engineering
Owner/Client:	Transportation Corridor Agencies 345 Clinton Street Costa Mesa, CA 92626	***Construction Value:***	$20 Million
		PS&E Completed:	1992
Contact:	Bob Schraeder Construction Manager (714) 838-3833 x2169	***Construction Completed:***	1994

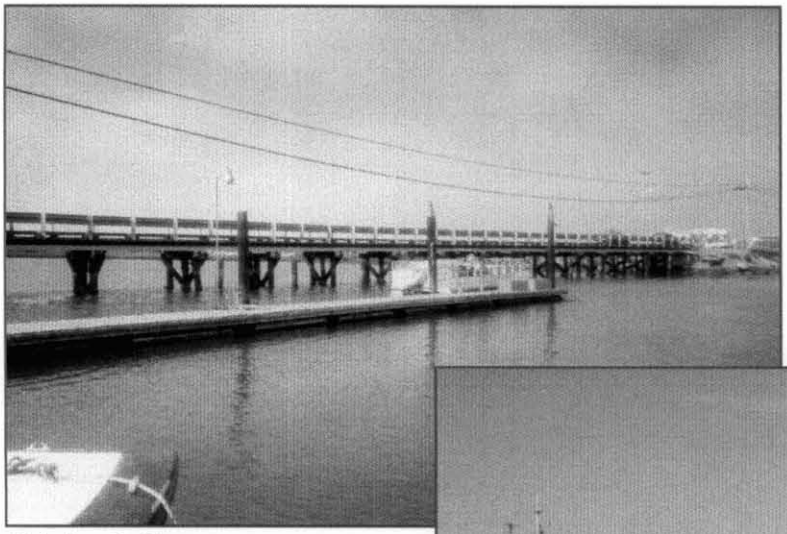
DOKKEN ENGINEERING

SANDHOLT ROAD BRIDGE AT MOSS LANDING SLOUGH — MONTEREY COUNTY, CA

Dokken Engineering is providing a complete planning and PS&E package for the HBRR funded replacement of the Sandholt Road Bridge at Moss Landing Slough for Monterey County. Dokken Engineering developed preliminary calculations that showed the existing bridge could collapse during a seismic event. These calculations were used by the County to obtain approval from Caltrans to add this bridge to the Seismic Retrofit Program. Dokken Engineering worked with the County and Caltrans to develop the most cost-effective retrofit solution for this bridge which was finally determined to be replacement. The bridge site is an environmentally sensitive area, which required a Section 4(f) Evaluation, mitigation and Coastal Commission approval.

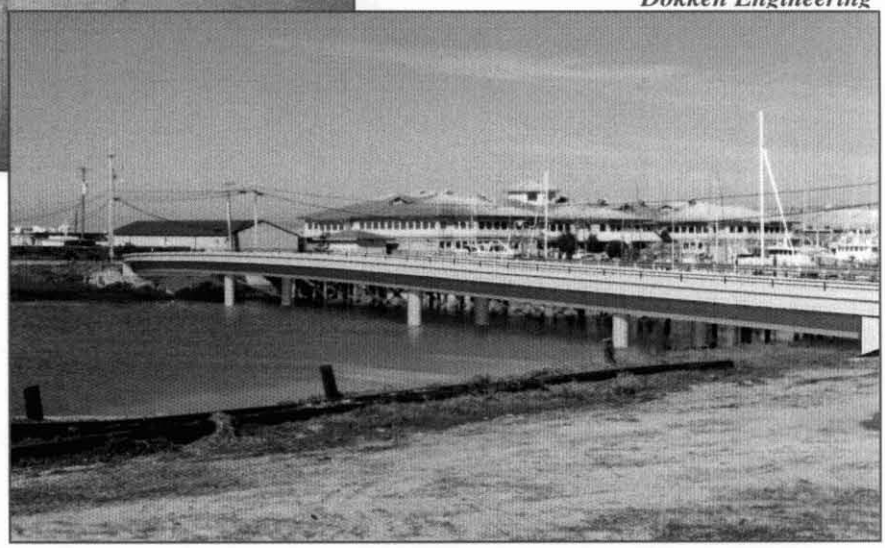
Liquefaction was found to be a major problem at the site, which required the installation of large diameter cast in steel shell (CISS) piles to support the new bridge. The replacement structure is a 4 span cast-in-place prestressed concrete box girder, supported on 2-column bents. The foundations consist of 1700mm diameter CISS piles. The Dokken Engineering team provided the following services:

- Project administration and coordination
- Surveying and mapping
- Environmental
- Geotechnical investigation
- Roadway PS&E
- Hydraulics/scour effects evaluation
- Bridge PS&E
- Signing and striping
- Utility relocation and drainage design
- Traffic control and staging
- Coordination with local, State and Federal agencies
- Public relations support



Existing Bridge

3D Illustration by Dokken Engineering



Location:	County of Monterey, CA	***Prime Consultant:***	Dokken Engineering
Owner/Client:	County of Monterey 312 East Alisal Street Salinas, CA 93901	***Construction Value:***	$2.0 Million
		PS&E Completed:	2000 (Est.)
Contact:	Mr. Paul Greenway, P.E. (831) 755-4800	***Construction Completed:***	2001 (Est.)

DOKKEN ENGINEERING

STATE ROUTE 1/BURNS CREEK BRIDGE REPLACEMENT — MONTEREY COUNTY, CA

Dokken Engineering contracted with Caltrans District 05 to provide professional consultant engineering services for the Burns Creek Bridge Replacement on SR-1 near Big Sur in Monterey County. The existing five-span steel truss and plate girder bridge spanned a steep coastal canyon and is located on an alignment that cannot be moved significantly without seriously disrupting the surrounding property. The planning and design of the replacement bridge required careful consideration of constructibility and the need to maintain traffic on SR-1 during construction. Environmental mitigation was also required for protection of an endangered species at the site.

The final design is a three span, cast-in-place prestressed concrete box girder structure constructed on the existing alignment. The new bridge is 405' long, 34' wide, and stands 150' above the streambed at the center of the gorge.

Dokken Engineering professional services included:

- Bridge PS&E
- Approach roadway design
- Environmental documentation
- Geotechnical investigation
- Hydraulic investigation
- Topo mapping and surveys
- Planning studies and estimates for alternative bridge type selection
- Permit applications
- Staged construction
- Traffic control
- Construction support

Location: Monterey County, CA

Owner/Client: California Department of Transportation
District 05
50 Higuera Street
San Luis Obispo, CA 93401

Contact: Orville Morgan
(805) 549-3281

Prime Consultant: Dokken Engineering

Construction Value: $3.6 Million

PS&E Completed: 1992

Construction Completed: 1999

DOKKEN ENGINEERING

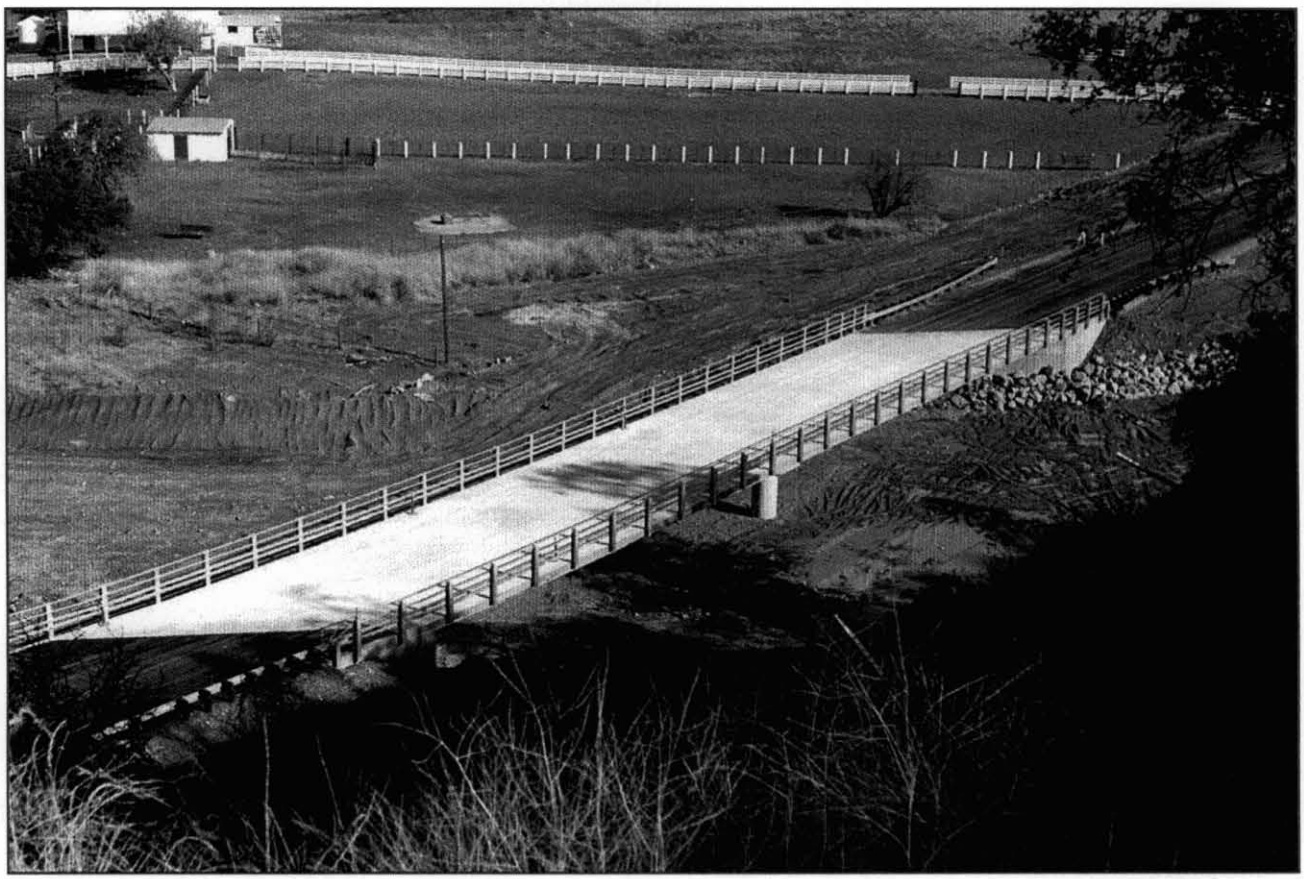
PANOCHE ROAD BRIDGE REPLACEMENT — SAN BENITO COUNTY, CA

Dokken Engineering prepared the PS&E to obtain approval within a three-month period for the construction of the permanent replacement structure for the Panoche Road Bridge at Tres Pinos Creek. Dokken Engineering also provided full-time resident engineering and inspection services for this emergency bridge replacement project.

The bridge was damaged beyond repair during the January and March 1995 floods. As part of the bridge replacement, approximately 1200' of the roadway was realigned to prevent debris from a steep bluff from blocking the roadway. The design and construction of the project was expedited to take advantage of the 100% funding available for work completed within 180 days of the disaster declaration date and return the road to public service as soon as possible.

The replacement of the structure and the realignment of the roadway was funded through the Federal Emergency Relief (ER) program with Caltrans oversight. As an emergency project, it was categorically exempt with no special studies required under NEPA guidelines.

The replacement structure is a two span, post-tensioned, cast-in-place concrete box girder bridge with a total length of 186'-4" and a width of 32'-8". The structure was partially constructed on a 950' radius curve with a maximum deck superelevation of 6%. The foundation for the bridge consists of cast-in-steel-shell concrete piles with 36" diameter at the abutments and 48" diameter at the center pier. The approach roadways were constructed to rural standards with paved shoulders.



Location:	San Benito County, CA	***Prime Consultant:***	Dokken Engineering
Owner/Client:	San Benito County Department of Public Works 3220 Southside Road Hollister, CA 95023	***Construction Value:***	$812,000
		PS&E Completed:	1995
Contact:	Mr. Arman Nazemi (831) 636-4170	***Construction Completed:***	1996

DOKKEN ENGINEERING

EASTERN TRANSPORTATION CORRIDOR — ORANGE COUNTY, CA

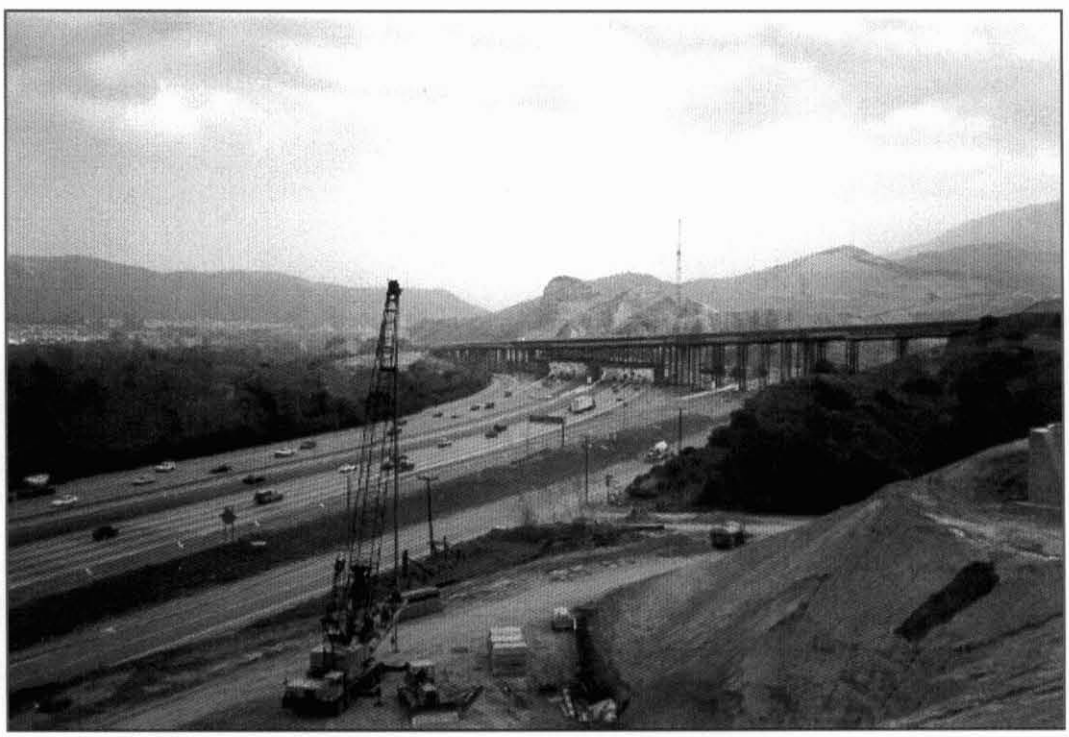
Dokken Engineering completed the structure design of 24 bridges on this design-built project in Orange County. Dokken Engineering is a member of the Silverado Constructors team that was awarded the design/build contract for constructing the 17-mile Eastern Transportation Corridor toll road. The privately funded project is administered by the Transportation Corridor Agency (TCA), a joint powers toll-road authority in Orange County.

Dokken Engineering was responsible for preparing the structure plans and specifications as well as for providing construction support for all 24 bridge structures. The work included the design of interchanges, tunnel, connector structures, grade separation structures, wildlife crossing, retaining walls and sound walls on the bridges. Dokken Engineering also prepared structure planning studies for future toll road expansion and computer generated renderings for architectural review. The structures were designed to satisfy a stringent TCA developed seismic criteria, which include a service level earthquake as well as meeting Caltrans current seismic design criteria. One of the connector structures contains a long outrigger bent, which straddles SR 91. Another bridge used energy absorbing lead-core elastomeric bearings.

With a design/build contract, the development and approval of the project plans within a set schedule are critical to the success of the contract. Dokken Engineering was successful in meeting the schedules for approval, and in some instances, accelerated the schedule. The project was opened to traffic, under budget and on schedule, October 18, 1998.

Dokken Engineering provided the following services:

- Design-Build Bridge PS&E
- Retaining wall and soundwall design
- Structure planning studies
- Computer generated renderings
- Coordination with Project Agencies and Caltrans
- Construction support



Location: Orange County, CA

Owner: Transportation Corridor Agency
201 East Sandpointe, Suite 200
Santa Ana, CA 92707

Client: Silverado Constructors
22 Executive Park, Suite 200
Irvine, CA 92714

Contact: Bob Schraeder
Construction Manager
(714) 838-3833 x2169

Subconsultant: Dokken Engineering

Construction Value: $760,000,000

PS&E Completed: 1998

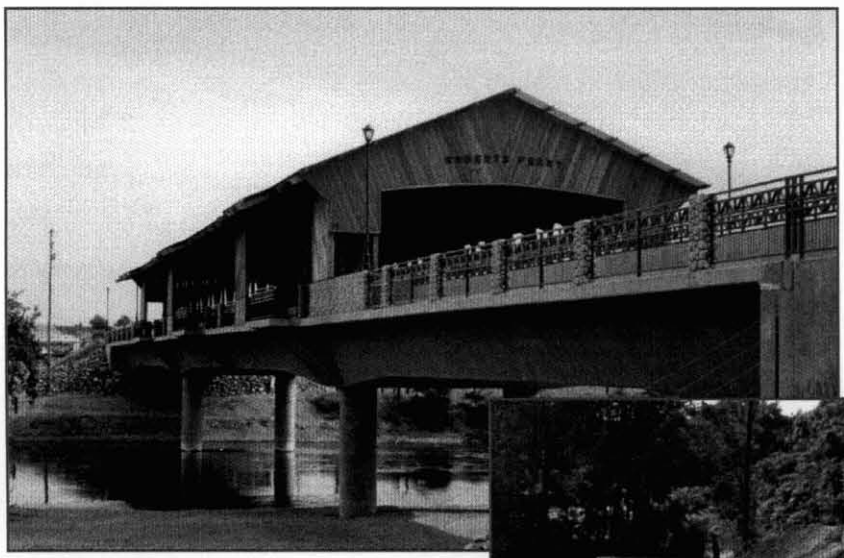
Construction Completed: 1998

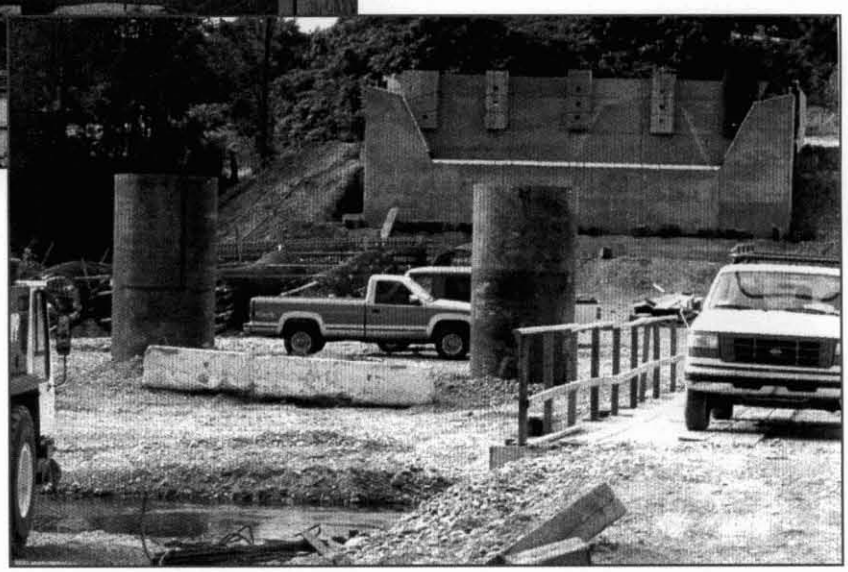
DOKKEN ENGINEERING

ROBERTS FERRY ROAD BRIDGE CONSTRUCTION INSPECTION — STANISLAUS COUNTY, CA

Dokken Engineering provided construction inspection support services for the construction of four 84" cast-in-drilled-hole (CIDH) concrete piles for Roberts Ferry Road Bridge at Tuolumne River. Prior to the project, Dokken Engineering attended a preconstruction conference with County and the contractor to gain a full understanding of the problems. The major issues included installing the piles in the wet due to the artesian ground water flows and the design consultant's request that the hole be open for only 2 days. To keep the hole open for the short time span, the contractor provided their slurry, reinforcing cage, and concrete installation procedures to the Resident Engineer for review and approval as early as possible. Dokken Engineering provided the following services:

- Project plans and specifications review
- Project pre-bid meeting
- Contractors' foundation construction plan review
- Kick-off and Pre-construction meetings
- Diaries and Progress reports
- Surveying, material testing, and Gamma Ray coordination
- Labor compliance
- Contract change orders
- Inspection of all aspect of work
- Environmental mitigation review
- Permit compliance
- Storm Water Pollution Protection Plan





Location: Stanislaus County, CA

Owner/Client: Stanislaus County
Department of Public Works
1716 Morgan Road
Modesto, CA 95358

Contact: James L. Gregg
(209) 525-4101

Construction Value: $3,500,000

PS&E Completed: 1998

Construction Completed: 2000

DOKKEN ENGINEERING

San Francisco – Oakland Bay Bridge
Demolition of the Existing East Span

East Span Seismic Safety Project
San Francisco & Alameda Counties, CA

Dokken Engineering has performed the preliminary studies, and is presently (December, 99) engaged in preparing the plans, specifications and estimates for the demolition of the existing East Span of San Francisco-Oakland Bay Bridge. Demolition of the structure is part of an overall project aiming at replacing the East Span from Yerba Buena Island to Oakland.

The bridge structure spanning the bay between Yerba Buena Island and Oakland Shore is about 9100 feet long. The superstructure consists of steel trusses of various spans and designs. The substructure consists of caissons in the deep portion of the bay with a maximum depth of about 240 feet below the water level and piers on timber piles for the shallower parts. The project includes engineered demolition of the superstructure, without dropping it in the bay, and the substructure to about one foot below the bay mud line, without disturbing the marine life. It involves the removal of about 52,000 tons of structural steel and 93,000 cubic yards of concrete under very strict environmental constraints.

Location: San Francisco and Alameda Counties

Owner/Client: California Department of Transportation
Division of Structures
801 12th Street, 3rd Floor
Sacramento, CA 95816

Client: T.Y.Lin International and
Moffatt & Nichol Engineers
A Joint Venture
825 Battery Street, 2nd Floor
San Francisco, CA 94111

Contacts: Mr. Moe Amini, Project Manager
California Department of Transportation
(916) 445-7851

Subconsultant: Dokken Engineering

Demolition Cost: $70 Million (Est.)

PS&E Completed: July 2000

Construction Completed: 2006 (Est.)

Mr. Al Ely, Project Manager
Moffatt & Nichol Engineers
(415) 291-3700

DOKKEN ENGINEERING

SANTA CLARA RIVER BRIDGE AT VIA PRINCESSA ROAD — SANTA CLARITA, CA

Dokken Engineering contracted with a private developer to provide professional consultant engineering services for the Santa Clara River Bridge at Via Princessa Road. The bridge structure is a six span cast-in-place prestressed concrete box girder that is 840' long, 76' wide, and passes over Metrolink Railroad, SR-126 and the South Fork of the Santa Clara River. Special erosion control plans were included to protect open excavations from summer flows. Dokken Engineering also provided full Construction Management services and was responsible for Quality Assurance, record keeping, estimates, and materials testing. Professional services included:

- Planning studies and estimates for alternative bridge type selection
- Preparation of environmental documents
- Geotechnical investigations
- Hydraulic investigations
- Topographic mapping and surveys
- Permit applications
- Bridge PS&E
- Roadway PS&E
- Construction Management

Location:	Santa Clarita, CA	***Prime Consultant:***	Dokken Engineering
Owner:	City of Santa Clarita 23920 Valencia Blvd, Suite 300 Santa Clarita, CA 91355	***Construction Value:***	$5 Million
		PS&E Completed:	1998
Client:	Beazer Homes California, Inc. 1100 Town & Country, Suite 100 Orange, CA 92868	***Construction Completed:***	2000
Contact:	Mr. Tony Nisich, City of Santa Clarita (661) 259-2489	Mr. Bill Haub, Beazer Homes (661) 286-2328	

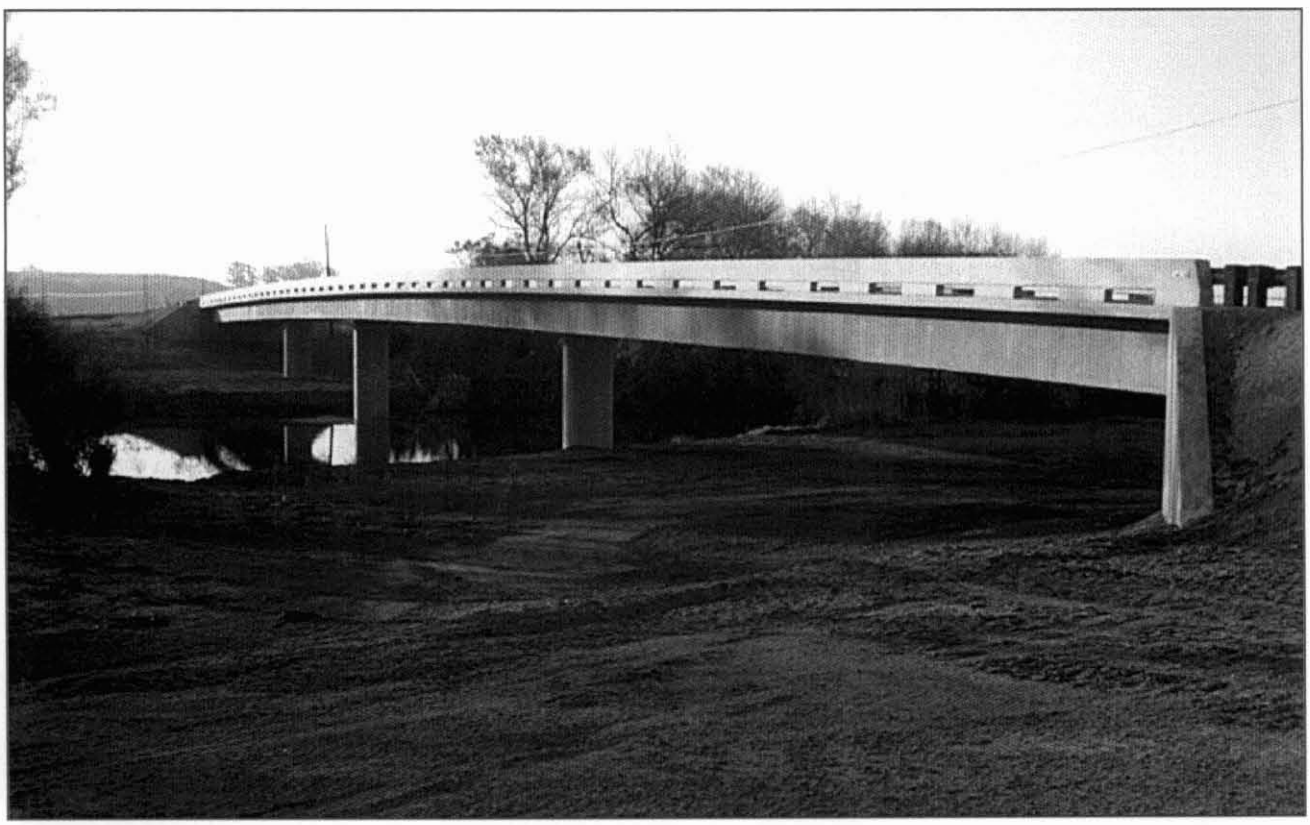
DOKKEN ENGINEERING

McGowan Road (Pajaro River) Bridge Replacement — Watsonville, CA

Dokken Engineering provided professional consultant services for replacement of the McGowan Road Bridge over the Pajaro River connecting Monterey and Santa Cruz Counties. The old bridge was heavily damaged during the Loma Prieta earthquake and was removed by the U.S. Army as a training exercise leaving a clear site for the construction of the new bridge. The project was funded through the Highway Bridge Rehabilitation and Replacement (HBRR) program.

Dokken Engineering prepared four alternate bridge types, including a precast I-girder and various span arrangements for the selected alignment. The County selected a 470' long, 35' wide, four-span, cast-in-place, prestressed concrete box girder bridge because it had increased load capacity, less maintenance, greater economy, and better adaptability and aesthetics. Environmental concerns were particularly sensitive for this project due to the site involving riparian lands and proximity to Monterey Bay. Substantial effort was required to satisfy the California Coastal Commission requirements. Complete project services were provided, including:

- Roadway design
- Bridge design
- Alternative bridge design
- Environmental investigations and reports
- Mapping
- Surveying
- Conceptual geometry
- Geotechnical investigations
- Permits



Location: Watsonville, CA

Owner/Client: Monterey County
Department of Public Works
312 East Alisal Street
Salinas, CA 95123

Contact: Nick Nichols, P.E.
(831) 755-4815

Prime Consultant: Dokken Engineering

Construction Value: $1.8 Million

PS&E Completed: 1992

Construction Completed: 1992

DOKKEN ENGINEERING

JOHNSVILLE ROAD BRIDGE REPLACEMENT — PLUMAS COUNTY, CA

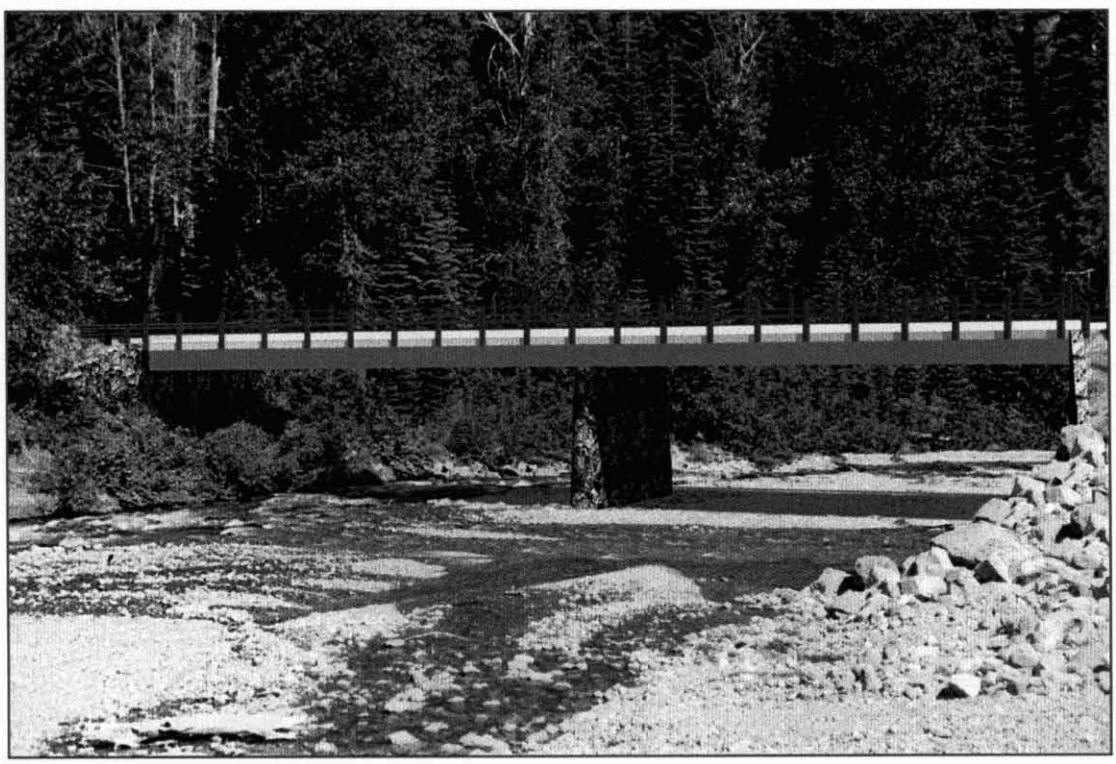
Dokken Engineering provided preliminary engineering and environmental documentation for the replacement of the HBRR funded Johnsville Road Bridge over Jamison Creek in Plumas County. Built in 1938, the existing bridge was structurally deficient and functionally obsolete.

The proposed bridge is a two span reinforced concrete box girder structure constructed on a curve, approximately 9.75 meters (34') wide and 45.72 meters (151') long, with two travel lanes and shoulders. The bridge will have two approximately equal length spans with a single pier in the creek channel. To preserve the aesthetics of the area, architectural treatments were included on the abutments and piers to match the river rock. Computer renderings were prepared to show the treatments in place. The California Department of Parks and Recreation reviewed the project design prior to construction, which is due to start the summer of 2000, and be completed the same year.

Traffic will be maintained on the existing structure during the first stage of construction of the replacement bridge. Following completion of the first stage of construction, traffic will be shifted to the new structure and the existing bridge demolished. The balance of the replacement structure will be constructed after demolition and removal of debris from the existing bridge.

The Dokken Engineering team is providing the following services:

- Bridge PS&E
- Approach roadway design
- Retaining wall design
- Public workshops
- Hydrology study
- Architectural treatments on the abutments and piers
- Computer renderings
- Coordination with HBRR Funding
- Stages construction plans



Location: Plumas County, CA

Owner/Client: Plumas County
Department of Public Works
1834 East Main Street
Quincy, CA 95971

Contact: Martin Byrne, P.E.
(530) 283-6268

Prime Consultant: Dokken Engineering

Construction Value: $1.5 Million

PS&E Completed: 1999

Construction Completed: 2000 (Est.)

DOKKEN ENGINEERING

GOODYEARS BAR BRIDGE — SIERRA COUNTY, CA

Dokken Engineering assisted Sierra County with the bridge damage assessment and completed the Plans, Specifications, and Estimate for emergency repairs for the Goodyears Bar Bridge in 1997. During the January 1997 New Year's flood on the North Fork of the Yuba River, two of the piers supporting the south approach were washed out resulting in the loss of three spans. The residents of Goodyears Bar were isolated and forced to detour over many miles of winding roads. Other repairs needed included impact damage to lower chord of the main truss span, stabilization of the cylinder pier at the south end of the main span, and backfilling of the north abutment which was undercut and near failure. Plans were prepared on a "fast track" schedule allowing construction of the replacement approach spans and other temporary repairs to be completed within six weeks. The bridge was re-opened to traffic on February 28, 1997, providing the people of Goodyear's Bar with the access they needed. Funding of the project was through the Federal ER Program with Caltrans Local Assistance oversight.

Dokken Engineering also prepared the Permanent Restoration Report for the bridge project in 1998. This Report identified three alternatives for the permanent restoration of the bridge. Based upon the recommendations of the Report and public input, it was determined that the best alternative was to construct new reinforced concrete approach spans and relocate the existing main truss span to a new alignment immediately upstream of the existing bridge. This alternative, which also involved raising the bridge to reduce the potential for future flood damage to the main truss span, was approved for funding through the Federal ER Program and later approved for STIP matching funs and HBRR funding, as well. Dokken Engineering has completed the design of the permanent restoration, coordinated right-of-way appraisals and acquisition and preparation of the environmental documentation and other associated work in 1999. The project is currently in construction with completion expected in November 2000. The Dokken Engineering team has provided the following services for this project:

- Damage Assessment Report
- Environmental Documentation
- Right-of-Way Appraisals and Acquisition
- Geotechnical Investigation and Foundation Report
- Bridge PS&E
- Roadway PS&E
- Coordination with Caltrans & local agencies
- "Fast Track" scheduling
- Federal ER Program funding
- Local Programs Request for Authorization forms
- Alternative bridge designs
- Public outreach
- Signing and Striping
- Drainage design
- Hydrology studies
- Bid Analysis
- Design Support Services During Construction

Location: Downieville, CA

Owner/Client: Sierra County
Department of Public Works & Transportation
P.O. Box 98
Downieville, CA 95939

Contact: Tim Beals, Director
(530) 289-3201

Prime Consultant: Dokken Engineering

Construction Value: $1,250,000

PS&E Completed: July 1999

Construction Completed: November 2000 *(Est.)*

DOKKEN ENGINEERING

ADDITIONAL REFERENCES

Doug Helming
City of Carlsbad
2075 Las Palmas Drive
Carlsbad, CA 92009
(760) 431-5999

Project:
- Rancho Santa Fe Road Realignment – 35% Complete

Tim Flanagan
City of Vista
600 Eucalyptus Avenue
Vista, CA 92083
(619) 726-1340

Projects:
- Sycamore Avenue/SR-78 Interchange Modification – Complete
- Escondido Avenue/ SR-78 Interchange Modification – Complete
- Emerald Drive/ SR-78 Interchange Modification – Complete
- Hacienda Drive/Buena Vista Creek Bridge – Complete
- Melrose Drive – Complete
- Busch Drive/Buena Vista Creek Bridge – Complete

Chandra Collure
City of Solana Beach
635 S. Highway 101
Solana Beach, CA 92075
(619) 755-2998

Project:
- Lomas Santa Fe Drive / I-5 Interchange Modification Alternatives, City of Solana Beach-95% Complete

Gary Costa
City of Oceanside
300 North Hill Street
Oceanside, CA 92054
(619) 966-4761

Project:
- College Boulevard/ SR-78 Interchange Modification – Complete

Lloyd Holt
City of Encinitas
505 S. Vulcan Avenue
Encinitas, CA 92024
(760) 633-2775

Project:
- Leucadia Boulevard/I-5 Interchange Modification – Complete

Djoen Yoe
City of Los Angeles
Department of Public Works
650 South Spring Street, Suite 400
Los Angeles, CA 90014
(213) 847-8929

Projects:
- Olympic Boulevard Bridge Retrofit – Complete
- Fairfax Boulevard Bridge Retrofit – Complete
- Sunset Boulevard Bridge Retrofit – Complete
- Twelfth Avenue Bridge Retrofit – Complete
- Second Place Bridge Retrofit – Complete
- Anaheim Street Bridge Retrofit – Complete

Doug Ellinger
County of Mendocino
340 Lake Mendocino Drive
Ukiah, CA 95482
(707) 463-4363

Projects:
- Morrison Creek Bridge – Complete
- Wilderness Load Road Bridge – Complete

Gary Goff
CALTRANS Division of Structures
801 12th Street, 3rd Floor
Sacramento, CA 95816
(916) 227-8038

Project:
- Various Local Programs
- 9th Street Bridge Replacement

ADDITIONAL REFERENCES

Ronald Jesperson
CALTRANS Division of Structures
801 12th Street, 3rd Floor
Sacramento, CA 95816
(916) 227-8049

Project:
- Various Local Programs
- 9th Street Bridge Replacement

Kenneth Puth
CALTRANS, District 10
1976 East Charter Way
Stockton, CA 95201
(209) 948-7398

Project:
- 9th Street Bridge Replacement

Anthony Marquez
CALTRANS Division of Structures
801 12th Street, 3rd Floor
Sacramento, CA 95816
(916) 227-8727

Project:
- Local Programs Retrofit

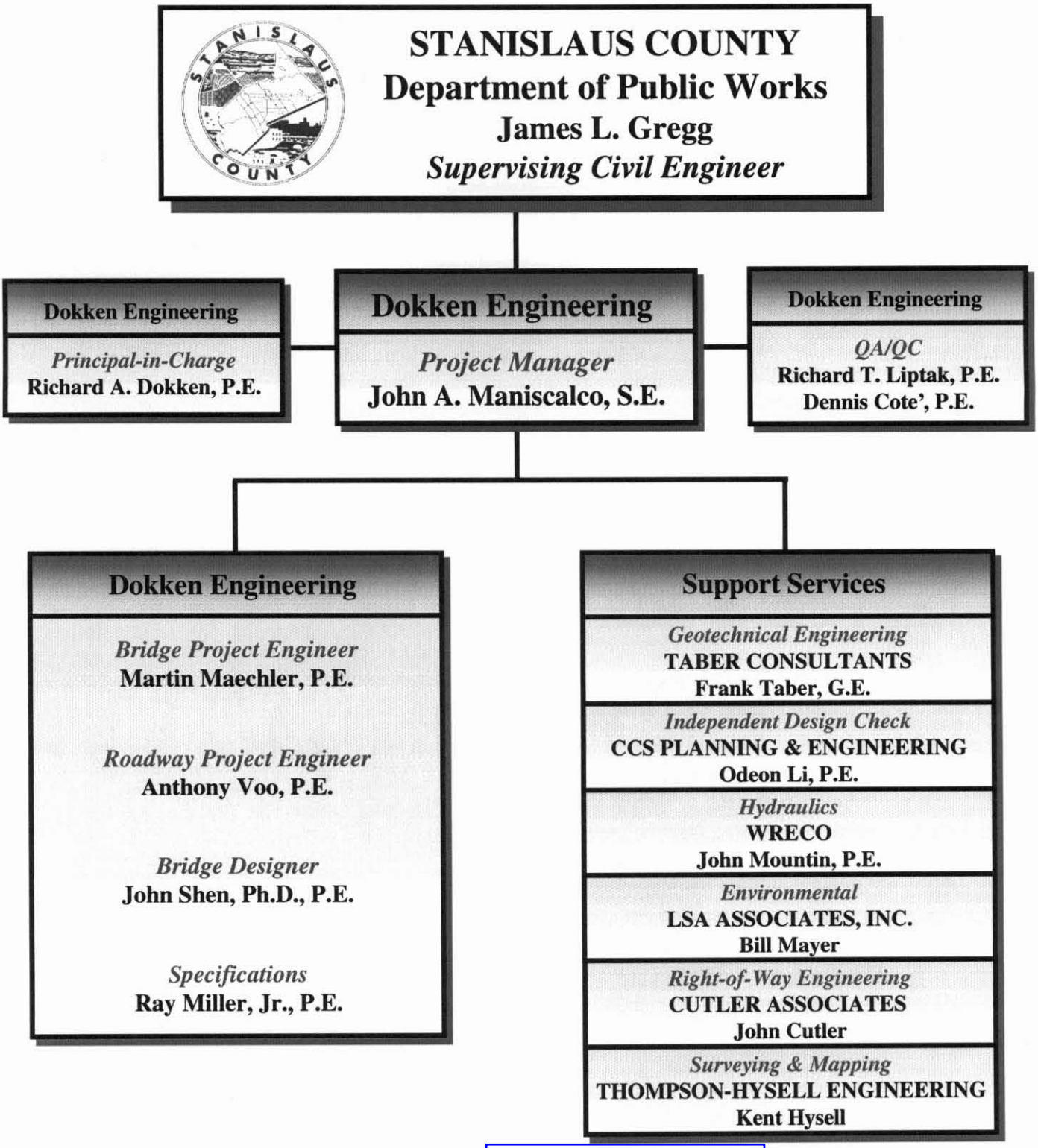
Paul Reilly
CALTRANS
2800 Gateway Oaks, 2nd Floor
Sacramento, CA 95733
(916) 274-5861

Project:
- Seismic Retrofit 59X857 – Complete

Michael Kim
CALTRANS Local Assistance
1891 Alhambra Boulevard
Sacramento, CA 95816
(916) 227-8050

Project:
- Local Assistance, Monterey County

Santa Fe Avenue Bridge at Tuolumne River
Project Team



Next Page