STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor
DEPARTMENT OF TRANSPORTATION
ESC/OE MS #43
1737 30TH. Street 2ND. Floor
SACRAMENTO, CA 945816

October 1, 1999

04-SM,Ala-92-R26.4/R30.2,R0.0/R4.3
04-045014

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD FROM 3.8 km WEST OF THE COUNTY LINE TO 0.4 km EAST OF THE SAN MATEO-HAYWARD BRIDGE TOLL PLAZA.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on October 13, 1999.

This addendum is being issued to revise the Notice to Contractors and Special Provisions, and the Proposal and Contract.

Project Plan Sheets 16, 17, 28, 29, 50, 82, 140, 146, 152 and 232 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Special Provisions, the 'NOTICE TO CONTRACTORS' is revised as attached.

In the Special Provisions, Section 5-1.005, "CONTRACT BONDS", the second paragraph is amended to read as follows:

"Each of the two bonds required in Section 3-1.02, "Contract Bonds", of the Standard Specifications shall be in a sum equal to 100 percent of the contract price."

In the Special Provisions, Section 5-18, "FORCE ACCOUNT PAYMENT", the second paragraph is amended to read as follows:

"To the total of the direct costs computed as provided in Sections 9-1.03A(1), "Labor," 9-1.03A(2), "Materials," and 9-1.03A(3), "Equipment Rental," of the Standard Specifications, there will be added a markup of 25 percent to the cost of labor, 10 percent to the cost of materials, and 10 percent to the equipment rental. These markups shall be applied to all force account work, regardless if the added force account work affects the contract completion date."

In the Special Provisions, Section 5-1.20, "PAYMENTS", is revised as attached.

In the Special Provisions, Section 5-21, "SOUND CONTROL REQUIREMENTS", the second paragraph is deleted.

In the Special Provisions, Section 5-24, "AERIALLY DEPOSITED LEAD, GENERAL", is revised as attached.

In the Special Provisions, Section 5-26, "AREAS FOR CONTRACTOR'S USE", the first paragraph is revised as follows:

"Except for the area from "WOS" Station 8+77 to 9+60, no area is available within the contract limit for the exclusive use of the Contractor. The area from "WOS" Station 8+77 to 9+60 is available for the Contractor's use only after the completion of stage construction in this area. Temporary storage equipment and materials on other areas of the State property may be arranged with the Engineer, subject to the Engineer's approval, to the prior demands of State maintenance forces and toll forces, and to other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for any damage to or loss of materials or equipment located within these areas."

In the Special Provisions, Section 8-2.01, "PORTLAND CEMENT CONCRETE", is revised as attached.

In the Special Provisions, Section 8-2.02, "CEMENT AND WATER CONTENT", the first paragraph is revised as follows:

"The amount of free water used in concrete for deck slabs of bridges and structure approach slabs shall not exceed 160 kg/m^3, plus 40 kg for each required 100 kg of cementitious material in excess of 400 kg/m^3."

In the Special Provisions, Section 8-4.01, "BAR REINFORCEMENT SPLICE TESTING (ULTIMATE BUTT SPLICES)", is revised as attached.

In the Special Provisions, Section 10-1.04, "WATER POLLUTION CONTROL", the third paragraph is revised to read as follows:

"This project shall conform to the requirements of Permits No. CAS000002 and No. CAS000003, hereafter referred to as the "Permit", issued by the State Water Resources Control Board. This Permit regulates storm water discharges associated with construction activities."

In the Special Provisions, Section 10-1.05, "NON-STORM DISCHARGES", subsection "Stockpile Dewater", the third and fourth paragraphs are revised to read as follows:

"All water removal from temporary stockpiles shall be handled in accordance with National Pollutant Discharge Elimination System (NPDES) Permits No. CAS000002 and No. CAS000003, hereinafter referred to as the "Permit", issued by the State Water Resources Control Board. Copies of the Permit, and its amendments will be available for inspection and purchase at the Department of Transportation, 111 Grand Avenue, Oakland. Please call the Toll Bridge Program Duty Senior, Telephone No. (510) 286-5549, to reserve copies at least 24 hours in advance.

The Contractor is responsible for all work, records, reports, and costs involved in handling the water in accordance with the NPDES-Permit. The Contractor shall supply all analytical data, dewatering volume records, and written requests for discharge to the Engineer for approval prior to discharging any water. The Engineer shall have up to 7 calendar days for review and approval of discharge. Water that does not meet discharge permit requirements shall not be discharged on the site or to the storm drainage or to the sanitary sewer systems. The Contractor is responsible for either treating such water to meet the permit requirements for discharge or hauling such water off site to an appropriately licensed liquid disposal facility. Penalties assessed against the State for permit non-compliance by the Contractor will be borne by the Contractor. Such penalties will be deducted from the monthly progress payment."

In the Special Provisions, Section 10-1.12, "COOPERATION", the fourth paragraph is revised to read as follows:

"After construction work within the "Designated Portion of the Work" from "WOS" Station 8+77 to 10+55 has been completed to temporary grade, the State will grant the Contractor a 'Relief of Maintenance and Responsibility,' as described in Section 7-1.15 of the Standard Specifications, from "WOS" Station 9+60 to 10+55 within the "Designated Portion of the Work". The Contractor shall be excluded from "WOS" Station 9+60 to 10+55 for a period of 250 working days, and shall not have access to, access through, or use of this area, unless granted in writing in advance by the Engineer. During this 250 working day exclusion period, the Contractor for Contract No. 04-045034 shall be driving concrete sheet piling from "WOS" Station 10+48 to 14+80, and using the area from "WOS" Station 9+60 to 10+55 for crane and equipment storage. At the end of the 250 working day exclusion period, the Contractor shall complete work in the "Designated Portion of the Work" as described in the section "Order of Work" and as shown on the plans."

In the Special Provisions, Section 10-1.14, "TRANSPORTATION FOR THE ENGINEER", the third paragraph is revised to read as follows:

"The commercial grade work boat shall be 22-foot Sentry Boston, or equal, meeting or exceeding the following minimum requirements:

DRIVE POWER:

1) Outboard-2 each 90 HP "Coastal" Engines (Both Mercury and Mariner make such a model).
2) Fuel Tank-built in 173 gal. tank

EQUIPMENT:

1) HD Rubbing Strakes-set of four
2) Stainless Steel Cut Water
3) Heavy Duty Bow- Eye Reinforcement
4) Stern Splashwell Bulk Head
5) High patterned side rails
6) Heavy Duty Lifting Eyes
7) Twin Cylinder Steering Upgrade
8) Extra 95 amp battery dual engine
9) Push to start panel upgrade, dual engine
10) Hydraulic twin tabs
11) Full width stern seat
12) Deck utility box
13) Rubber Bumpers - 6 ea., 4" dia.
14) 30 lb. anchor with chain and line (adequate for specific site condition)

ELECTRONICS:

1) VHF/FM Radio System
2) One (1) Com 58 or equal
3) Radar system Furuno 1731 or equal
4) Depth finder digital
5) Compass Richie navigator 2 or equal

SAFETY & EMERGENCY EQUIPMENT

1) United States Coast Guard required commercial grade safety and emergency equipment
2) Navigation lights, commercial U.S. Coast Guard approved
3) San Francisco Bay Navigation Charts appropriate for the project requirements
4) United States Coast Guard-approved life jackets for the Contractor's personnel."

In the Special Provisions, Section 10-1.15, "PROGRESS SCHEDULE (CRITICAL PATH)", is revised as attached.

In the Special Provisions, Section 10-1.16, "ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY", is revised as attached.

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC", subsection "COMPENSATION FOR DELAYED, DISAPPROVED OR ABORTED CLOSURES", subsection "DAMAGES", the fourth paragraph is deleted.

In the Special Provisions, Section 10-1.27, "EXISTING HIGHWAY FACILITIES", the following paragraph is added after the sixth paragraph:

"A report entitles "San Mateo-Hayward Brige Preliminary Engineering Report Widening of Trestle Section" is available for inspection by appointment at the office of the Toll Bridge Program Duty Senior, 111 Grand Avenue, Oakland, CA 94612; telephone number (510) 286-5549; email Duty_Senior_Tollbridge_Distict04@dot.ca.gov."

In the Special Provisions, Section 10-1.27D, "REMOVE THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS", is revised as attached.

In the Special Provisions, Section 10-1.30, "EARTHWORK", subsection "MATERIAL WITH AERIALLY DEPOSITED LEAD," is revised to read as follows:

"**MATERIAL WITH AERIALLY DEPOSITED LEAD**.--Attention is directed to "Aerially Deposited Lead, General" elsewhere in these special provisions.

As shown on the plans, existing materials along the eastbound shoulder and in the median from a depth of 0 m to 0.6 m from station 108+77 to station 111+80 contain less than 1575 mg/kg total lead and less than 500 ug/l water soluble lead and are designated as Type Y materials. Type Y materials excavated in accordance with the contract documents shall be disposed at a Class I facility as specified in these special provisions.

All other existing material excavated from areas within the project limits qualifies as cover material. Use of such material within the project limits is not restricted.

Materials excavated from shown areas within the project limits are designated as containing aerially deposited lead. The Contractor shall stockpile materials for subsequent stages and/or handle the surplus material more than once. The Contractor shall monitor the air quality during excavation operations in accordance with the Health and Safety Plan. Results of air quality tests shall be made available to the Engineer upon request.

Surplus material from outside the limits of Type Y material, which cannot be used in accordance with Section 19-2.06, "Surplus Material," of the Standard Specifications, shall become the property of the Contractor and shall be disposed of in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. The written authorization from the property owner shall include acknowledgment that the material contains lead, and shall state the levels of lead reported from testing. Test results for this material are included in the "Material Information Handout."

Full compensation for conforming to the requirements of this section involving materials containing aerially deposited lead, except as otherwise specifically provided in these special provisions, shall be considered as included in the contract prices paid per cubic meter for Roadway Excavation and no additional compensations will be allowed therefor."

In the Special Provisions, Section 10-1.33, "PILING", is revised as attached.

In the Special Provisions, Section 10-1.34, "PRESTRESSING CONCRETE", the second paragraph is revised as follows:

"Prestressing steel shall be grit impregnated epoxy-coated and filled strand conforming to the requirements in ASTM Designation: A 882/A 882M, except as provided herein. The Supplementary Requirements listed in Supplement I of ASTM Designation: A 882/A 882M for epoxy-coated and filled strand shall apply."

In the Special Provisions, Section 10-1.35, "BRIDGE SUPERSTRUCTURE", is revised as attached.

In the Special Provisions, Section 10-1.36, "CONCRETE STRUCTURES", subsection "FALSEWORK," the following paragraph is added:

"All falsework materials shall be completely removed. Falsework piling shall be removed to at least 1.5 m below ground line or at the Contractor's option, the piling may be removed completely."

In the Special Provisions, Section 10-1.36, "CONCRETE STRUCTURES", subsection "CONCRETE COATING," the first paragraph is revised to read as follows:

"All exposed concrete surfaces, except riding surfaces and concrete barrier, shall be covered with one of the following concrete coating systems. Concrete piles shall be covered to the upper one-third of the pile length."

In the Special Provisions, Section 10-1.36, "CONCRETE STRUCTURES", subsection 10-36A, "PRECAST PRESTRESSED CONCRETE BRIDGE MEMBERS," the third paragraph is revised to read as follows:

"Bar reinforcing steel for use in precast prestressed concrete members shall conform to the provisions in "Epoxy-coated Prefabricated Reinforcement," elsewhere in these special provision."

In the Special Provisions, Section 10-1.37, "PRECAST PRESTRESSED CONCRETE SLABS," the second paragraph is revised to read as follows:

"Bar reinforcing steel for use in precast prestressed concrete members shall conform to the provisions in "Epoxy-coated Prefabricated Reinforcement," elsewhere in these special provision."

In the Special Provisions, Section 10-1.38, "PRECAST PRESTRESSED CONCRETE DECK PANELS," the third paragraph is revised to read as follows:

"Bar reinforcing steel and welded wire fabric for use in precast prestressed concrete deck panels shall conform to the provisions in "Epoxy-coated Prefabricated Reinforcement," elsewhere in these special provision."

In the Special Provisions, Section 10-1.38, "PRECAST PRESTRESSED CONCRETE DECK PANELS," the following paragraph is added:

"The pay quantities for furnishing the deck panels will be computed on the basis of the width and length of the individual panels as shown on the plans and no change in the quantities will be made because of the use by the Contractor of the alternatives or options."

In the Special Provisions, Section 10-1.42, "REINFORCEMENT," the following paragraph is added after the second paragraph:

"If individual hoops, made continuous with butt welded splices, are substituted for spiral reinforcement, the hoops shall conform to the requirements for No. 25 hoops in Section 8-4, "Ultimate Splice Testing," of these special provisions."

In the Special Provisions, Section 10-1.44, "CLEAN AND PAINT STEEL PILING", the first paragraph is revised to read as follows:

"Steel piling surfaces shall be cleaned and painted in conformance with the provisions in Sections 59-2, "Painting Structural Steel," and -1, "Paint," of the Standard Specifications and these special provisions. The upper 10 meters of the steel pile shall be dry blast cleaned and shop primed with organic zinc coating."

In the Special Provisions, Section 10-1.44, "CLEAN AND PAINT STEEL PILING", the following paragraph is added after the first paragraph:

"Painting will not be required for piling at abutments."

In the Special Provisions, Section 10-1.44, "CLEAN AND PAINT STEEL PILING", subtitle "PAINTING,", the tenth paragraph is revised as follows:

"The final coat of waterborne inorganic zinc coating shall be applied at the shop and to the limits specified in these special provisions."

In the 'Proposal To The Department of Transportation', on the first page, the fourth paragraph is revised as follows:

"Bids are to be submitted for the entire work. The entire work is defined as all the work involved in Item Nos. 1 through 79, and 127, plus the work involved in the bridge design alternative selected by the bidder, Alternative 1, 2 or 3 as designated in the Engineer's Estimate. The amount of the bid for comparison purposes will be the total of Item Nos. 1 through 79, and 127 plus the items involved in the bridge design alternative, Alternative 1, 2 or 3 selected by the bidder." Bids are to be submitted for the entire work.

To Proposal and Contract book holders:

- REPLACE THE ENTIRE PAGE 9 ENGINEER'S ESTIMATE IN THE PROPOSAL WITH THE ATTACHED REVISED ENGINEER'S ESTIMATE. THE REVISED ENGINEER'S ESTIMATE IS TO BE USED IN THE BID.
- ATTACHED ARE THE DEPARTMENT'S RESPONSES TO THE CONTRACTORS' INQUIRIES. THE RESPONSES TO CONTRACTORS' INQUIRIES, UNLESS INCORPORATED INTO A FORMAL ADDENDA TO THE CONTRACT, ARE NOT A PART OF THE CONTRACT AND ARE PROVIDED FOR THE CONTRACTORS' CONVENIENCE ONLY. IN SOME INSTANCES, THE QUESTION AND ANSWER MAY REPRESENT A SUMMARY OF THE MATTERS DISCUSSED RATHER THAN A WORD-FOR-WORD RECITATION. THE AVAILABILITY OR USE OF INFORMATION PROVIDED IN THE RESPONSES TO CONTRACTORS' INQUIRIES IS NOT TO BE CONSTRUED IN ANY WAY AS A WAIVER OF THE PROVISIONS OF SECTION 2-1.03 OF THE STANDARD SPECIFICATIONS OR ANY OTHER PROVISIONS OF THE CONTRACT, THE PLANS, STANDARD SPECIFICATIONS OR SPECIAL PROVISIONS, NOR TO EXCUSE THE CONTRACTOR FROM FULL COMPLIANCE WITH THOSE CONTRACT REQUIREMENTS. BIDDERS ARE CAUTIONED THAT SUBSEQUENT RESPONSES OR CONTRACT ADDENDA MAY AFFECT OR VARY A RESPONSE PREVIOUSLY GIVEN.
- INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.
- Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.
- Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

Attachments

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS

CONTRACT NO. 04-045014

04-SM,Ala-92-R26.4/R30.2,R0.0/R4.3

Sealed proposals for the work shown on the plans entitled:

> **STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD FROM 3.8 km WEST OF THE COUNTY LINE TO 0.4 km EAST OF THE SAN MATEO-HAYWARD BRIDGE TOLL PLAZA**

will be received at the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, CA 95814, until 2 o'clock p.m. on October 13, 1999, at which time they will be publicly opened and read in Room 0100 at the same address.

Proposal forms for this work are included in a separate book entitled:

> **STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR CONSTRUCTION ON STATE HIGHWAY IN SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD FROM 3.8 km WEST OF THE COUNTY LINE TO 0.4 km EAST OF THE SAN MATEO-HAYWARD BRIDGE TOLL PLAZA**

General work description: Bridge widening.

This project has a goal of 3 percent disabled veteran business enterprise (DVBE) participation.
No pre-bid meeting is scheduled for this project.
Bidder inquiries may be made as follows:

For all inquiries: Toll Bridge Program Duty Senior at District 4, Office, 111 Grand Avenue, Oakland, California 94612; fax number (510) 286-4563; e-mail Duty_Senior_Tollbridge_District04@dot.ca.gov.

Bidders will be requested to submit their inquiries in writing to the Toll Bridge Program Duty Senior in order to avoid misunderstandings. Written inquiries shall include the contract number, bidder's name, address and phone number. Written inquiries will be investigated and an addendum to the contract will be issued to the extent feasible and at the discretion of the Department. A copy of each addendum will also be posted on the Internet at http://www.dot.ca.gov/hq/esc/tollbridge/index.html.

Bids are required for the entire work described herein.

Plans and specifications have been prepared for 3 alternative designs for constructing the bridge widening portion of this project. The 3 alternatives are:

ALTERNATIVE 1

A prestressed concrete double T girder bridge.

ALTERNATIVE 2

A prestressed concrete bulb T girder bridge with precast prestressed deck panels.

ALTERNATIVE 3

A prestressed concrete voided slab bridge.

as shown on the plans (and as described under "Description of Bridge Work" in the special provisions).

The bidder shall submit prices for all the work of Items 1 through 79 and 127, plus prices for all the work of the items included in the alternative selected by the bidder. The alternative for which such alternative bid prices are submitted for the work shall be at the option of the bidder.

Bids will be compared on the basis of the lowest total bid for the entire work, regardless of the alternative upon which the bid was submitted.

The Contractor will be required to construct the alternative upon which his bid was submitted and the award of the contract was based.

The time limit specified for the completion of the work contemplated herein is considered insufficient to permit completion of the work by the Contractor working a normal number of hours per day or week on a single shift basis. Should the Contractor fail to maintain the progress of the work in accordance with the "Progress Schedule" required in these special provisions, additional shifts will be required to the extent necessary to ensure that the progress conforms to the abovementioned schedule and that the work will be completed within the time limit specified.

At the time this contract is awarded, the Contractor shall possess either a Class A license or a Class C-8 license.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in accordance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small Business Certification and Resources at the time of bid opening in accordance with the provisions in Section 2-1.04, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting a "Small Business" preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in accordance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, MS #26, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Irvine, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are available at the office of the District Director of Transportation of the district in which the work is situated.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California Department of Industrial Relations' Internet Web Site at: http://www.dir.ca.gov. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated August 2, 1999

AFL

CONTRACT NO. 04-045014
REVISED PER ADDENDUM NO. 1 DATED OCTOBER 1, 1999

5-1.20 PAYMENTS

Attention is directed to Section 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payment," of the Standard Specifications, the amount set forth for the contract items of work hereinafter shall be deemed to be the maximum value of said contract item of work which will be recognized for progress payment purposes:

Electronic Mobile Daily Diary System Data Delivery	$ 37,000

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of the contract item of work which will be recognized for progress payment purposes.

Clearing and Grubbing	$ 10,000
Develop Water Supply	$ 10,000
Electronic Mobile Daily Computer dairy System Data Delivery	$ 37,100

After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the first estimate made after acceptance of the contract.

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in the payment as materials furnished but not incorporated in the work:

Piling
Precast members
Type B joint seal
Bar reinforcing steel
Miscellaneous metal
Culvert pipe and appurtenances
Miscellaneous iron and steel
Railing and barriers
Pavement markers

Plate steel for fabrication of pipe piling and structural steel, stored within the State of California, and fabricated elements for pipe piling and structural steel, fabricated and stored within the United States, will be eligible for partial payment if the Contractor furnishes evidence satisfactory to the Engineer that its storage is subject to or under the control of the Department and that it has been designated or fabricated specifically for this project and is of such character that is not adaptable to any other use.

5-1.24 AERIALLY DEPOSITED LEAD, GENERAL

Aerially Deposited Lead is defined as lead deposited within the Department of Transportation (Caltrans) Right of Way primarily due to vehicle emissions. Aerially deposited lead contamination has been discovered through testing of materials from within the project lirnits.

Attention is directed to "Material with Aerially Deposited Lead" under "Earthwork" of these special provisions regarding the handling of material with aerially deposited lead.

Portions of the Site Investigation Report are included in the "Material Information Handout." The reports entitled "Site Investigation Report, State Routes 92 and 238, Alameda County, California, March 1997; Site Investigation Report - San Mateo-Hayward Bridge Projects: Trestle Approach Widening, Landscape Mitigation, including Pedestrian Overcrossing in San Mateo and Alameda Counties, California, June 1999; and Site Investigation Report - San Mateo-Hayward Projects: State Route 92 East Approach Widening, Alameda County, California, September 1999" are available for inspection at the Department of Transportation, 111 Grand Avenue, Oakland, CA 94623. Please call the Toll Bridge Program Duty Senior, Telephone No. (510) 286-5549, duty_senior_tollbridge_districtO4@dot.ca.gov., to reserve a copy at least 24 hours in advance. Materials with total levels of lead greater than the Total Threshold Limit Concentration (TTLC) of 1000 milligrams per kilogram (mg/kg) or solubility levels, as established by the California Waste Extraction Test (WET), greater than the Solubility Threshold Lirnit Concentration (STLC) of 5 milligrams per liter (mg/l) shall be considered hazardous pursuant to California Code of Regulations, Title 22. The materials with aerially deposited lead are not regulated under the Federal Resource Conservation and Recovery Act (RCRA).

Excavation, transportation, placement and handling of soils containing aerially deposited lead shall result in no visible dust. The Contractor shall have a water truck available at all times while performing earthwork, excavation or grubbing activities in work areas containing aerially deposited lead at hazardous levels.

Once the Contractor has completed the management of materials containing aerially deposited lead, in accordance with the plans, as specified in the Standard Specifications and these special provisions, the Contractor shall have no responsibility for such materials in place and shall not be obligated for further cleanup, removal or remedial actions for such materials.

Excavation and disposal of material with aerially deposited lead shall be in accordance with all rules and regulations of agencies including, but not limited to, the following:

United States Department of Transportation (USDOT)
United States Environmental Protection Agency (USEPA)
California Department of Health Services
California Environmental Protection Agency (Cal-EPA)
Department of Toxic Substances Control (DTSC), Region 2
Integrated Waste Management Board
Regional Water Quality Control Board (RWQCB), Region 2
State Air Resources Control Board
Bay Area Air Quality Management District (BAAQMD)
California Division of Occupational Safety and Health Administration (CAL-OSHA)

The Contractor shall prepare a project specific Health and Safety Plan to prevent or minimize exposure to potentially hazardous levels of lead. The Contractor's attention is directed to Title 8, California Code of Regulations, Section 5192 (b) (4) (B) and the Occupational Safety and Health Guidance Manual published by National Institute of Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), and USEPA for elements of the site safety plan. The Health and Safety Plan shall contain as a minimum but not be limited to: identification of key personnel for the project, job hazard analysis for work assignments, summary of risk assessment, air monitoring plan, personal protective equipment, delineation of work zones on-site, decontarnination procedures, general safe work practices, security measures, emergency response plans and worker training.

The Health and Safety Plan shall utilize monitoring and exposure standards based on Construction Standards of Title 8, California Code of Regulations Section 1532.1 and as a minimum sha I contain a description of achvibes, specific means employed to achieve compliance, report of the technology considered, air monitoring, schedule for implementation of the program, a work practice program, administrative control schedule, description of arrangements for information transfer between contractors concerning potential exposure to lead and other relevant information. The Health and Safety Plan shall include an air monitoring plan that shall include, but not be limited to, upwind and downwind perimeter monitoring and a

discussion of how the air monitoring will be conducted during the progression of roadway work in areas designated as containing aerially deposited lead. The Health and Safety plan shall be approved by the Contractor's Certified Industrial Hygienist before submission to the Engineer. The plan shall be submitted to the Engineer for review and acceptance at least 15 days prior to beginning any work in areas containing aerially deposited lead.

Prior to performing any work in areas containing lead, personnel who have no prior training or are not current in their training status, including State personnel, shall complete a safety training prograrn provided by the Contractor, which meets the requirements of Title 8, California Code of Regulations, Section 1532.1.

Personal protective equipment, training, and medical surveillance required by the Contractor's Health and Safety Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 10.

Stockpiles of materials containing lead that are designated for disposal at a Class I facility shall be stored on undamaged 0.5-mm high density polyethylene or an equivalent impermeable barrier on a paved surface. If the location is on unpaved surface that does not contain aerially deposited lead, the thickness of the barrier shall be 1.5-mm or its equivalent. The dimensions of the barrier shall exceed by 0.3 m (1 foot) the dimensions of the stockpile at all times. Any searns in the barrier shall be sealed to prevent leakage. The stockpiles shall be covered with sheets of 0.3-mm polyethylene to prevent windblown dispersion and precipitation run-off and run-on. If the Engineer determines that adverse conditions such as high wind or rain exists and when more than one sheet is required to cover the stockpiles, the sheets shall be overlapped a minimum of 450 mm in a manner that prevents water from flowing onto the materials. The cover shall be secured in a manner that keeps it in place at all times. The cover shall be inspected and maintained in accordance with the requirements of "Water Pollution Control" of these special provisions. Temporary stockpile locations will be approved by the Resident Engineer. The Contractor shall prepare a work plan for the handling and stockpiling of materials containing lead that are designated for disposal. The work plan shall include a plan for initial and confirmatory sampling of any stockpile area after removal of the materials to ensure that additional lead has not been deposited or has not migrated to surrounding soils. The sampling plan shall meet USEPA, SW 846, ,'Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical, Chapter Nine, Section 9.1 requirements for the development of the sampling plan, statistical analysis, and reporting of the test results and shall be submitted to the Engineer for review and approval at least 15 days prior to beginning work fn any areas containing lead.

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work, including registration for transporting vehicles carrying hazardous materials.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

8-2.01 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Unless the use of mineral admixture is prohibited, whenever the word "cement" is found in the Standard Specifications or the special provisions, it shall be understood to mean "cementitious material" when both of the following conditions are met:

A. The cement content of portland cement concrete is specified, and
B. Section 90, "Portland Cement Concrete," of the Standard Specifications is referenced.

Portland cement concrete that is produced using equipment where the cement and mineral admixture are proportioned in the same weigh hopper shall be sampled and tested by the Contractor, in the presence of the Engineer, for mix uniformity in conformance with the requirements of ASTM Designation: C 94 Section 11, "Mixing and Delivery," and "Annex A1." The testing shall be performed on concrete produced using an approved project mix design and may be done at the project concrete placement site.

The batch plant producing the portland cement concrete for the project shall have met the requirements of California Test 109 within one year prior to producing concrete for the project.

Sampling for mix uniformity tests shall be performed the first time portland cement concrete, of sufficient volume to perform these tests, is placed on the project. All test results shall be presented to the Engineer no later than 10 days after completion of sampling.

Test results from mixer uniformity testing will not be used for contract compliance, acceptance, or payment.

Prior to placing any concrete on the project, the Contractor shall supply a list of all portland cement concrete mixers to be used. When truck mixers are to be used, the list shall contain the truck identification number, mixer brand, mixer age and mixer condition.

When truck mixers are used, the mix uniformity testing shall be performed on 5 truck mixers per project. The truck mixers selected for testing shall be representative of the different mixer brands, ages, and conditions of the mixers on the list and approved by the Engineer. Mixer selection shall be completed before mix uniformity testing is started. Sampling for the mix uniformity tests from each of the 5 mixers shall be completed within the same work shift, unless otherwise approved in writing by the Engineer. The Contractor shall notify the Engineer, in writing, a minimum of 24 hours prior to performing the sampling for these tests. The letter of notification shall include 1) the truck mixer information, 2) the specific gravity of the coarse aggregate in the mix to be tested, and 3) a copy of the current ACI "Concrete Field Testing Technician, Grade 1" certification for each tester who will perform testing for the Contractor. The Contractor shall provide an adequate number of testers to successfully perform the testing with a minimum amount of impact to the Contractor's operations.

When concrete is completely mixed in stationary mixers, each mixer used for the project shall be tested one time.

Full compensation for the testing of mix uniformity as specified herein will be considered as included in the contract price paid for the concrete work involved and no additional compensation will be allowed therefor.

Unless otherwise specified, Type C accelerating chemical admixture conforming to the requirements of ASTM Designation: C 494, may be used in portland cement concrete for precast steam cured concrete members.

Section 90-1.01, "Description," of the Standard Specifications is amended to read:

90-1.01 Description.—Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.

Unless otherwise specified, cementitious material to be used in portland cement concrete shall conform to the requirements for cement and mineral admixtures in Section 90-2, "Materials" and shall be "Type II Modified" portland cement and mineral admixture.

Concrete for each portion of the work shall comply with the requirements for the Class, cementitious material content in kilograms per cubic meter, 28-day compressive strength, minor concrete, or commercial quality concrete, as shown on the plans or specified in these specifications or the special provisions.

Class 1 concrete shall contain not less than 400 kg of cementitious material per cubic meter.

Class 2 concrete shall contain not less than 350 kg of cementitious material per cubic meter.

Class 3 concrete shall contain not less than 300 kg of cementitious material per cubic meter.

Class 4 concrete shall contain not less than 250 kg of cementitious material per cubic meter.

Minor concrete shall contain not less than 325 kg of cementitious material per cubic meter unless otherwise specified in these specifications or the special provisions.

Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic meter of concrete in structures or portions of structures shall conform to the following:

Use	Cementitious Material Content (kg/m^3)
Concrete which is designated by compressive strength:	
Deck slabs and slab spans of bridges	400 min., 475 max.
Roof sections of exposed top box culverts	400 min., 475 max.
Other portions of structures	400 min., 475 max.
Concrete not designated by compressive strength:	
Deck slabs and slab spans of bridges	400 min.
Roof sections of exposed top box culverts	400 min.
Prestressed members	400 min.
Seal courses	400 min.
Other portions of structures	400 min.
Concrete for precast members	400 min., 550 max.

Whenever the 28-day compressive strength shown on the plans is greater than 25 MPa, the concrete shall be considered to be designated by compressive strength. If the plans show a 28-day compressive strength which is 31 MPa or greater, an additional 7 days will be allowed to obtain the specified strength. The 28-day compressive strengths shown on the plans which are 25 MPa or less, are shown for design information only and are not to be considered a requirement for acceptance of the concrete.

Concrete designated by compressive strength shall be proportioned such that the concrete will conform to the strength shown on the plans or specified in the special provisions.

The Contractor shall determine the mix proportions for all concrete except pavement concrete. The Engineer will determine the mix proportions for pavement concrete.

Before using concrete for which the mix proportions have been determined by the Contractor, or in advance of revising those mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.

Compliance with cementitious material content requirements will be verified in conformance with procedures described in California Test 518 for cement content. For testing purposes, mineral admixture shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.

If any concrete used in the work has a cementitious material content, consisting of cement,-mineral admixture, or cement plus mineral admixture, which is less than the minimum required for the work, the concrete shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place and the Contractor shall pay to the State $0.55 for each kilogram of cement, mineral admixture, or cement plus mineral admixture which is less than the minimum required for the work. The Department may deduct the amount from any monies due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions for cementitious material content will be made based on the results of California Test 518.

The requirements of the preceding paragraph shall not apply to minor concrete nor commercial quality concrete.

All concrete for which the mix proportions are determined either by the Contractor or the Engineer shall conform to the requirements of this Section 90.

The first paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is amended to read:

90-2.01 Portland Cement.—Unless otherwise specified, portland cement shall be either "Type II Modified" portland cement.

"Type II Modified" portland cement shall conform to the specifications for Type II portland cement in ASTM Designation: C 150.

In addition, "Type II Modified" portland cement shall conform to the following requirements:

A. The cement shall not contain more than 0.60 percent by mass of alkalies, calculated as the percentage of Na_2O plus 0.658 times the percentage of K_2O, when determined by either direct intensity flame photometry or by the atomic absorption method. The instrument and procedure used shall be qualified as to precision and accuracy in conformance with the requirements of ASTM Designation: C 114.
B. The autoclave expansion shall not exceed 0.50 percent.
C. Mortar, containing the cement to be used and Ottawa sand, when tested in conformance with California Test 527, shall not expand in water more than 0.010 percent and shall not contract in air more than 0.048 percent except that when cement is to be used for precast prestressed concrete piling, precast prestressed concrete members or steam cured concrete products, the mortar shall not contract in air more than 0.053 percent.

The third paragraph in Section 90-2.01, "Portland Cement," of the Standard Specifications is deleted.
The twelfth paragraph in Section 90-2.02, "Aggregates," of the Standard Specifications is deleted.
The first paragraph in Section 90-2.03, "Water," of the Standard Specifications is amended to read:

90-2.03 Water.—In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO_4. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO_4. In no case shall the water contain an amount of impurities that will cause either: 1) a change in the setting time of cement of more than 25 percent when tested in conformance with ASTM Designation: C 191 or ASTM Designation: C 266; or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent, when tested in conformance with ASTM Designation: C 109, when compared to the results obtained with distilled water or deionized water, tested in conformance with ASTM Designation: C 109.

The following section is added to Section 90-2, "Materials," of the Standard Specifications:

90-2.04 Admixture Materials.—Admixture materials shall conform to the requirements of the ASTM Designations shown below:

Chemical Admixtures—ASTM Designation: C 494.
Air-entraining Admixtures—ASTM Designation: C 260.
Calcium Chloride—ASTM Designation: D 98.
Mineral Admixtures—Coal fly ash, raw or calcined natural pozzolan as specified in ASTM Designation: C 618, except that the loss on ignition shall not exceed 4 percent, or, silica fume as specified in ASTM Designation: C 1240, with reduction of mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

Mineral admixtures shall be used in conformance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."

Section 90-4.02, "Materials," of the Standard Specifications is amended to read:

90-4.02 Materials.—Admixture materials shall be as specified in Section 90-2.04, "Admixture Materials."

Section 90-4.05, "Optional Use of Chemical Admixtures," of the Standard Specifications is amended to read:

90-4.05 Optional Use of Chemical Admixtures.—The Contractor will be permitted to use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate any concrete construction application subject to the following conditions:

When a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by mass except that the resultant cementitious material content shall be not less than 300 kilograms per cubic meter.

When a reduction in cementitious material content is made, the dosage of admixture used shall be the dosage used in determining approval of the admixture.

Section 90-4.07, "Optional Use of Air-entraining Admixtures," of the Standard Specifications is amended to read:

90-4.07 Optional Use of Air-entraining Admixtures.—When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate as provided in Section 40-1.015, "Cement Content."

Section 90-4.08, "Required Use of Mineral Admixtures," of the Standard Specifications is amended to read:

90-4.08 Required Use of Mineral Admixtures.—Unless otherwise specified, mineral admixture shall be combined with cement to make cementitious material for use in portland cement concrete.

The calcium oxide content of mineral admixtures shall not exceed 10 percent and the available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when measured in conformance with the requirements of ASTM Designation: C 618.

Unless otherwise specified, the amounts of cement and mineral admixture used in cementitious material for portland cement concrete shall be sufficient to satisfy the minimum cementitious material content requirements specified in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and shall conform to the following:

The minimum amount of cement shall not be less than 75 percent by mass of the specified minimum cementitious material content.

For precast concrete members, the minimum amount of mineral admixture to be combined with cement shall not be less than 15 percent mineral admixture by mass conforming to the requirements of ASTM Designation: C 618 Type F or N and Section 90-2.04, "Admixture Materials," and 7 percent silica fume by mass of the total amount of cementitious material to be used conforming to ASTM Designation: C 1240.

For cast-in-place concrete, the minimum amount of mineral admixture to be combined with cement shall not be less than 25 percent by mass of the total amount of cementitious material to be used.

If more than the required amount of cementitious material is used, the additional cementitious material in the mix may be either cement, any mineral admixture conforming to the requirements of Section 90-2.04, "Admixture Materials," or a combination of both; however, the maximum total amount of mineral admixture shall not exceed 35 percent by mass of the total amount of cementitious material to be used in the mix. Where Section 90-1.01, "Description," specifies a maximum cementitious content in kilograms per cubic meter, the total mass of cement and mineral admixture per cubic meter shall not exceed the specified maximum cementitious material content.

Section 90-4.09, "Optional Use of Mineral Admixture," of the Standard Specifications is deleted.

Section 90-4.11, "Storage, Proportioning, and Dispensing of Mineral Admixtures," of the Standard Specifications is amended to read:

90-4.11 Storage, Proportioning, and Dispensing of Mineral Admixtures.—Mineral admixtures shall be protected from exposure to moisture until used. Sacked material shall be piled to permit access for tally, inspection and identification for each shipment.

Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper.

Mineral admixtures shall be incorporated into concrete using equipment conforming to the requirements for cement weigh hoppers, and charging and discharging mechanisms in ASTM Designation: C 94, in Section 90-5.03, "Proportioning," and in this Section 90-4.11.

When interlocks are required for cement and mineral admixture charging mechanisms by Section 90-5.03A, "Proportioning for Pavement," and cement and mineral admixtures are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of mineral admixture until the mass of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."

Mineral admixture used in concrete for exposed surfaces of like elements of a structure shall be from the same source and of the same percentage.

Section 90-5.02, "Proportioning Devices," of the Standard Specifications is amended to read:

90-5.02 Proportioning Devices.—All weighing, measuring or metering devices used for proportioning materials shall conform to the requirements in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, any automatic weighing systems used shall comply with the requirements for automatic proportioning devices in Section 90-5.03A, "Proportioning for Pavement." These automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and mineral admixture for one batch of concrete is a single operation of a switch or starter.

Proportioning devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to insure their accuracy.

Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the plant is in operation, the mass of each batch of material shall not vary from the mass designated by the Engineer by more than the tolerances specified herein.

Equipment for cumulative weighing of aggregate shall have a zero tolerance of ±0.5 percent of the designated total batch mass of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be ±0.5 percent of the individual batch mass designated for each size of aggregate. Equipment for cumulative weighing of cement and mineral admixtures shall have a zero tolerance of ±0.5 percent of the designated total batch mass of the cement and mineral admixture. Equipment for weighing cement or mineral admixture separately shall have a zero tolerance of ±0.5 percent of their designated individual batch masses. Equipment for measuring water shall have a zero tolerance of ±0.5 percent of its designated mass or volume.

The mass indicated for any batch of material shall not vary from the preselected scale setting by more than the following:

A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch mass of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch masses.

B. Cement shall be within 1.0 percent of its designated batch mass. When weighed individually, mineral admixture shall be within 1.0 percent of its designated batch mass. When mineral admixture and cement are permitted to be weighed cumulatively, cement shall be weighed first to within 1.0 percent of its designated batch mass, and the total for cement and mineral admixture shall be within 1.0 percent of the sum of their designated batch masses.

C. Water shall be within 1.5 percent of its designated mass or volume.

Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, mineral admixture, or cement plus mineral admixture and aggregates shall not exceed that of commercially available scales having single graduations indicating a mass not exceeding the maximum permissible mass variation above, except that no scale shall be required having a capacity of less than 500 kg, with 0.5 kg graduations.

Section 90-5.03, "Proportioning," excluding Section 90-5.03A, "Proportioning for Pavement," of the Standard Specifications is amended to read:

90-5.03 Proportioning.—Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cement, mineral admixture and water as provided in these specifications. Aggregates shall be proportioned by mass.

At the time of batching, all aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry mass.

Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

Bulk cement to be blended with mineral admixture for use in portland cement concrete for pavement and structures may be weighed in separate, individual weigh hoppers or may be weighed in the same weigh hopper with mineral admixture and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer. If the cement and mineral admixture are weighed cumulatively, the cement shall be weighed first.

When cement and mineral admixtures are weighed in separate weigh hoppers**,** the weigh systems for the proportioning of the aggregate, the cement, and the mineral admixture shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute an individual and independent material weighing device. The cement and the mineral admixture shall be discharged into the mixer simultaneously with the aggregate.

The scale and weigh hopper for bulk weighing cement, mineral admixture, and cement plus mineral admixture shall be separate and distinct from the aggregate weighing equipment.

When the source of any aggregate is changed for concrete structures, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using such aggregates. When the source of any aggregate is changed for other concrete, the Engineer shall be allowed sufficient time to adjust the mix and such aggregates shall not be used until necessary adjustments are made.

For all batches with a volume of one cubic meter or more, the batching equipment shall conform to one of the following combinations:

A. Separate boxes and separate scale and indicator for weighing each size of aggregate.
B. Single box and scale indicator for all aggregates.
C. Single box or separate boxes and automatic weighing mechanism for all aggregates.

In order to check the accuracy of batch masses, the gross mass and tare mass of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined when ordered by the Engineer. The equipment shall be weighed at the Contractor's expense on scales designated by the Engineer.

Section 90-5.03A, "Proportioning for Pavement," of the Standard Specifications is amended to read:

90-5.03A Proportioning for Pavement.—Aggregates and bulk cement, mineral admixture, and cement plus mineral admixture for use in pavement shall be proportioned by mass by means of automatic proportioning devices of approved type conforming to the requirements specified in this Section 90-5.03A.

The Contractor shall install and maintain in operating condition an electrically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by mass of the fine aggregate.

The batching of cement, mineral admixture, or cement plus mineral admixture and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and mineral admixture hoppers or the cement plus mineral admixture hopper are charged with masses which are within the tolerances specified in Section 90-5.02, "Proportioning Devices."

The discharge gate on the cement and mineral admixture hoppers or the cement plus mineral admixture hopper shall be designed to permit regulating the flow of cement, mineral admixture, or cement plus mineral admixture into the aggregate as directed by the Engineer.

When separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.

Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and that the weigh box cannot be tripped until the required quantity from each of the several bins has been deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.

When the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required mass is discharged into the weigh box, after which the gate shall automatically close and lock.

The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

The third paragraph in Section 90-6.01, "General," of the Standard Specifications is amended to read:

All concrete shall be homogeneous and thoroughly mixed, and there shall be no lumps or evidence of undispersed cement, mineral admixture, or cement plus mineral admixture.

The third and fourth paragraphs in Section 90-6.02, "Machine Mixing," of the Standard Specifications are amended to read:

The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first one-fourth of the specified mixing time.

Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, or in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions which reduce or vary the required quantity of cementitious material in the concrete mixture.

The sixth paragraph in Section 90-6.02, "Machine Mixing," of the Standard Specifications is amended to read:

The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.

The seventh through tenth paragraphs in Section 90-6.03, "Transporting Mixed Concrete," of the Standard Specifications are amended to read:

When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours, or before 250 revolutions of the drum or blades, whichever comes first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 30° C, or above, a time less than 1.5 hours may be required.

When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 30° C, or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.

Each load of concrete delivered at the jobsite shall be accompanied by a weight certificate showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water added to the load and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This weight certificate shall also show the actual scale masses (kilograms) for the ingredients batched. Theoretical or target batch masses shall not be used as a substitute for actual scale masses.

Weight certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on 90 mm diskette with a capacity of at least 1.4 megabytes. Captured data, for the ingredients represented by each batch shall be LFCR (one line, separate record) with allowances for sufficient fields to satisfy the amount of data required by these specifications.

The Contractor may furnish a weight certificate that is accompanied by a separate certificate which lists the actual batch masses or measurements for a load of concrete provided that both certificates are 1) imprinted with the same non-repeating load number that is unique to the contract and 2) delivered to the jobsite with the load.

All weight certificates furnished by the Contractor shall conform to the requirements of Section 9-1.01, "Measurement of Quantities."

Section 90-6.05, "Hand-Mixing," of the Standard Specifications is amended to read:

90-6.05 Hand-Mixing.—Hand-mixed concrete shall be made in batches not more than one-fourth cubic meter and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than 0.3 meters in total depth. On this mixture shall be spread the dry cement and mineral admixture and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass again turned no fewer than 3 times, not including placing in the carriers or forms.

The table in the first paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

Type of Work	Nominal Penetration (mm)	Maximum Penetration (mm)
Concrete pavement	0-25	40
Non-reinforced concrete facilities	0-35	50
Reinforced concrete structures:		
Sections over 300 mm thick	0-35	65
Sections 300 mm thick or less	0-50	75
Concrete placed under water	75-100	115
Cast-in-place concrete piles	65-90	100

The first paragraph following the table of penetration ranges in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

The amount of free water used in concrete shall not exceed 183 kg/m^3, plus 20 kg for each required 100 kg of cementitious material in excess of 325 kg/m^3.

The fourth paragraph in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications is amended to read:

Where there are adverse or difficult conditions which affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic meter of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 kg of water per added 100 kg of cementitious material per cubic meter. The cost of additional cementitious material and water added under these conditions shall be at the Contractor's expense and no additional compensation will be allowed therefor.

Section 90-9.01, "General," of the Standard Specifications is amended to read:

90-9.01 General.—Concrete compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified elsewhere or are shown on the plans.

The compressive strength of concrete will be determined from test cylinders which have been fabricated from concrete sampled in conformance with California Test 539. Test cylinders will be molded and initial field cured in conformance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in conformance with California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in conformance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.

When concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall, at the Contractor's expense, make corrective changes, subject to approval of the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State $14.00 for each in-place cubic meter of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State $20.00 for each in place cubic meter of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. All concrete represented by a single test which indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials."

If the test result indicates that the compressive strength at the maximum curing age specified or allowed is below the specified strength, but 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum curing age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in conformance with the specifications of ASTM Designation: C 42.

No single compressive strength test shall represent more than 250 cubic meters.

When a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders which have been handled and stored in conformance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. When the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.

When concrete is specified by compressive strength, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use, will be required prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

Certified test data, in order to be acceptable, must indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of cure days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

Trial batch test reports, in order to be acceptable, must indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 4 MPa greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches which were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

All tests shall be performed in conformance with either the appropriate California Test methods or the comparable ASTM test methods. All equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

The certified test data and trial batch test reports shall include the following information:

A. Date of mixing.
B. Mixing equipment and procedures used.
C. The size of batch in cubic meters and the mass, type and source of all ingredients used.
D. Penetration of the concrete.
E. The air content of the concrete if an air-entraining admixture is used.
F. The age at time of testing and strength of all concrete cylinders tested.

All certified test data and trial batch test reports shall be signed by an official of the firm which performed the tests.

When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type or class of concrete required at that location.

After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making any changes which, in the judgment of the Engineer, could result in a lowering of the strength of the concrete below that specified.

The Contractor's attention is directed to the time required to test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

Section 90-10.02A, "Portland Cement," of the Standard Specifications is renamed "Cementitious Material" and is amended to read:

90-10.02A Cementitious Material.—Cementitious material shall conform to the provisions in Section 90-1.01, "Description." Compressive strength requirements consist of a minimum strength which must be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified elsewhere or are shown on the plans.

The fifth paragraph in Section 90-10.02B, "Aggregate," of the Standard Specifications is deleted.

Section 90-10.03, "Production," of the Standard Specifications is amended to read:

90-10.03 Production.—Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice, which will result in concrete that is thoroughly and uniformly mixed, that is suitable for the use intended, and which conforms to requirements specified herein. "Recognized standards of good practice" are outlined in various industry publications such as are issued by American Concrete Institute, AASHTO, or California Department of Transportation.

The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."

The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6.06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer.

Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before any stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 32° C. will be considered as conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.

The required mixing time in stationary mixers shall be not less than 50 seconds nor more than 5 minutes.

The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.

Each load of ready-mixed concrete shall be accompanied by a weight certificate which shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The weight certificate shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.

A Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets all contract requirements, including minimum cementitious material content specified.

The third and fourth paragraphs in Section 90-11.02, "Payment," of the Standard Specifications are amended to read:

Should the Engineer order the Contractor to incorporate any admixtures in the concrete when their use is not required by these specifications or the special provisions, furnishing the admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D.

Should the Contractor use admixtures as permitted under Sections 90-4.05, "Optional Use of Chemical Admixtures;" or 90-4.07, "Optional Use of Air-entraining Admixtures;" or should the Contractor request and obtain permission to use other admixtures for the Contractor’s benefit, the Contractor shall furnish those admixtures and incorporate them in the concrete at the Contractor’s expense and no additional compensation will be allowed therefor.

8-4.01 BAR REINFORCEMENT SPLICE TESTING (ULTIMATE BUTT SPLICES)

Ultimate butt splices and the testing of these splices shall conform to the provisions in "Reinforcement" of these special provisions and the requirements herein.

Ultimate butt splices shall be used at the following locations:

ULTIMATE BUTT SPLICE LOCATIONS

Location No.	Bridge No.	Portion of Structure	Bar Size	Bar Description
Location 1	35-0054	Piling	No. 25	Hoops
Location 2	35-0054	Piling	No. 32	Longitudinal reinforcement
Location 3	35-0054	Piling	No. 29	Longitudinal reinforcement
Location 4	35-0054	Alternative No. 2 PC/PS concrete girders	No. 36	Girder reinforcing bars extending through bent cap

The independent qualified testing laboratory used to perform the testing of all ultimate butt sample splices and control bars shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project and shall have the following:

1. Proper facilities, including a tensile testing machine capable of breaking the largest size of bar to be tested.
2. A device for measuring the total slip of the reinforcing bars within the splice to the nearest 25 µm. This device shall be placed parallel to the longitudinal axis of the bar and shall be able to simultaneously measure movement on both sides of the splice.
3. Operators who have received formal training for performing the testing requirements of ASTM Designation: A 370/A 370M and California Test 670.
4. A record of annual calibration of testing equipment. The calibration shall be performed by an independent third party that has 1) standards that are traceable to the National Institute of Standards and Technology and 2) a formal reporting procedure, including published test forms.

The Contractor shall designate in writing an ultimate butt splicing Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of all ultimate butt splicing, including materials and workmanship, performed by the Contractor and all subcontractors.

The QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, and approving all correspondence, required submittals, and reports regarding ultimate butt splicing to and from the Engineer.

Whenever any lot of ultimate butt splices is rejected, no additional ultimate butt splices shall be placed until the QCM performs a complete review of the Contractor's quality control process and submits written evidence, acceptable to the Engineer, that all remaining splices in this lot conform to the specifications.

Sample splices shall be 1) a minimum length of 1.5 meters for reinforcing bars No. 25 or smaller and 2 meters for reinforcing bars No. 29 or larger, with the splice located at mid-point, and 2) suitably identified prior to shipment with weatherproof markings that do not interfere with the Engineer's tamper-proof markings or seals.

A minimum of one control bar shall be removed from the same bar as, and adjacent to, each sample splice. Control bars shall be 1) a minimum length of 1 meter for reinforcing bars No. 25 or smaller and 1.5 meters for reinforcing bars No. 29 or larger, and 2) suitably identified prior to shipment with weatherproof markings that do not interfere with the Engineer's tamper-proof markings or seals. The portion of adjacent bar remaining in the work shall also be identified with weatherproof markings that correspond to its adjacent control bar.

Shorter length sample splice and control bars may be furnished if approved in writing by the Engineer.

Each sample splice and its associated control bar shall be identified and marked as a set. Each set shall be identified as representing either a prequalification, production, or job control sample splice.

The portion of hoop reinforcing bar, removed to obtain a sample splice and control bar, shall be repaired using a prequalified ultimate mechanical butt splice or the hoop shall be replaced in kind.

Reinforcing bars, other than hoops, from which sample splices are removed shall be repaired using prequalified ultimate mechanical butt splices or the bars shall be replaced in kind. These bars shall be repaired or replaced such that no splices are located in the "No Splice Zone" shown on the plans.

Section 52-1.08E, "Job Control Tests," of the Standard Specifications shall not apply.

ULTIMATE BUTT SPLICE TEST CRITERIA.—Ultimate prequalification, production, and job control sample splices shall be tensile tested in accordance with the requirements described in ASTM Designation: A 370/A 370M and California Test 670.

Ultimate prequalification and production sample splices shall rupture in the reinforcing bar either: 1) outside of the affected zone or 2) within the affected zone, provided that the sample has achieved at least 95 percent of the ultimate tensile strength of the control bar associated with the sample. In addition, necking of the bar shall be visibly evident at rupture regardless of whether the bar breaks inside or outside the affected zone.

The affected zone is the portion of the reinforcing bar where any properties of the bar, including the physical, metallurgical, or material characteristics, have been altered by fabrication or installation of the splice.

The ultimate tensile strength of each control bar shall be determined by tensile testing the bar to rupture. If two control bars are tested for one sample splice, the bar with the lower ultimate tensile strength shall be considered the control bar.

Testing to determine the minimum tensile strength, in accordance with the ninth paragraph of Section 52-1.08, "Splicing," of the Standard Specifications, will not be required.

PREQUALIFICATION TEST REQUIREMENTS FOR ULTIMATE BUTT SPLICES.—Prior to use in the work, all welded and mechanical ultimate butt splices shall conform to the following prequalification test requirements:

Four prequalification sample splices for each splice type, including ultimate mechanical butt splices, ultimate complete joint penetration butt welded splices, and ultimate resistance butt welded splices that will be used in the work, shall be fabricated by the Contractor and furnished to the Engineer for testing. In addition, for sleeve-filler metal, sleeve-swaged, sleeve-extruded, sleeve-filler grout, and sleeve-lockshear bolt types of couplers, four sample prequalification splices shall be fabricated for each bar deformation pattern that will be used in the work.

If different diameters of hoop reinforcement are shown on the plans, prequalification sample splices, as described above, will only be required for the smallest hoop diameter. In addition, these splices shall be fabricated using the same radius as shown on the plans for said hoops.

Unless otherwise directed in writing by the Engineer, all prequalification sample splices and control bar sets shall be shipped to the Office of Materials Engineering and Testing Services, 5900 Folsom Boulevard, Sacramento, CA 95819, telephone (916) 227-7251.

The 4 sets from each prequalification test shall be securely bundled together and identified by location and contract number with weatherproof markings prior to shipment. Bundles containing fewer than 4 sets will not be tested.

All 4 sample splices from each prequalification test shall conform to the requirements of "Ultimate Butt Splice Test Criteria" specified herein, and Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications.

Test results for each bundle of 4 sets will be reported in writing to the Contractor within 10 working days after receipt of the bundle by the Office of Materials Engineering and Testing Services. In the event that more than one bundle is received on the same day, 2 additional calendar days shall be allowed for providing test results for each additional bundle received. A test report will be made for each bundle received.

Should the Engineer fail to provide the test results within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in providing the test results, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

PRODUCTION TEST REQUIREMENTS FOR ULTIMATE BUTT SPLICES.—Production tests shall be performed for all welded and mechanical ultimate butt splices used in the work. A production test shall consist of 4 sets of sample splices and control bars removed from each lot of completed splices.

Production test will not be required for No. 36 girder reinforcing bars.

A lot of hoop reinforcing bars at location No. 1 is defined as 1) 120, or fraction thereof, of the same type of ultimate mechanical butt splices used for each bar size and each bar deformation pattern that is used in the work at said location or 2) 120, or fraction thereof, of ultimate complete joint penetration butt welded splices, or ultimate resistance butt welded splices for each bar size used in the work at said location.

For reinforcement at location No. 2, 3 and 4, a lot is defined as 1) 120, or fraction thereof, of the same type of ultimate mechanical butt splices used for each bar size and each bar deformation pattern that is used in the work at said location or 2) 120, or fraction thereof, of ultimate complete joint penetration butt welded splices, or ultimate resistance butt welded splices for each bar size used in the work at said location.

After all splices in a lot have been completed, the QCM shall notify the Engineer in writing that all couplers in this lot conform to the specifications and are ready for testing. The sample splices will either be selected by the Engineer at the job site or a fabrication facility, provided the facility is located within an 80-km radius of the jobsite.

After notification has been received, the Engineer will randomly select the 4 sample splices to be removed from the lot and place tamper-proof markings or seals on them. The Contractor or QCM shall select the adjacent control bar for each sample splice bar and the Engineer will place temper-proof markings or seals on them. These ultimate production sample splices and control bars shall be removed by the Contractor, and tested by an independent qualified testing laboratory, in the presence of either the Engineer or the Engineer's authorized representative.

The Engineer or the Engineer's authorized representative will be at the independent qualified testing laboratory within a maximum of 5 working days after receiving written notification that the samples are at the laboratory and ready for testing. Should the Engineer or the Engineer's authorized representative fail to be at the laboratory within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of this action, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

A sample splice or control bar from any set will be rejected if any tamper-proof marking or seal is disturbed prior to testing.

The 4 sets from each production test shall be securely bundled together and identified with a completed sample identification card prior to shipment to the independent laboratory. The card will be furnished by the Engineer. Bundles containing fewer than 4 sets shall not be tested.

A Test Report for all testing performed on each lot shall be prepared by the independent testing laboratory performing the testing and submitted to the QCM for review and approval. The report shall be signed by an engineer, who represents the laboratory, and is registered as a Civil Engineer in the State of California. The report shall include, as a minimum, the following information for each set: contract number, bridge number, lot number and location, bar size, type of splice, length of mechanical splice, physical condition of test sample splice and control bar, any notable defects, limits of affected zone, total measured slip, location of visible necking area, ultimate strength of each splice, ultimate strength and 95 percent of this ultimate strength for each control bar, and a comparison between 95 percent of the ultimate strength of each control bar and the ultimate strength of its associated splice.

The QCM must review, approve and forward each Test Report to the Engineer for review before any splices represented by the report are encased in concrete. The Engineer shall have 3 working days to review each Test Report and respond in writing after a complete report has been received. Should the Contractor elect to encase any splices prior to receiving notification from the Engineer, it is expressly understood that the Contractor will not be relieved of the Contractor's responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase any splices pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Prior to performing any tensile tests on production test sample splices, one of the 4 samples shall be tested for, and shall conform to, the requirements for total slip specified in Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications. Should this sample not meet these requirements, one retest, in which the 3 remaining samples are tested for total slip, will be allowed. Should any of these 3 samples not conform to said requirements, all splices in the lot represented by said production test will be rejected.

Should more than one sample splice from any production test fail to conform to the requirements of "Ultimate Butt Splice Test Criteria" specified herein, additional production tests shall be performed until at least 75 percent of the cumulative total of all individual sample splices tested in each lot conforms to said requirements.

If a production test for any lot fails, the Contractor will be required to repair or replace all reinforcing bars from which sample splices were removed, complete in place, before the Engineer selects any additional splices from said lot for further testing.

Production tests will not be required on any repaired splice from a lot, regardless of the type of prequalified ultimate mechanical butt splice used to make the repair, once a production test is successful.

Should additional production tests be required, any repaired splice may be selected by the Engineer for use in the additional production tests.

If a splice type other than the kind used to make the original splice is used to make a repair splice, and if more than one additional production test is required for a lot represented by these splices, these splices shall be considered a separate lot for the purposes of performing production tests.

QUALITY ASSURANCE TEST REQUIREMENTS FOR ULTIMATE BUTT SPLICES.—For the first production test performed, and for at least one, randomly selected by the Engineer, of every 5 additional production tests, or portion thereof, performed thereafter, the Contractor shall concurrently prepare 4 additional ultimate job control sample splices along with associated control bars. These ultimate job control samples shall be prepared in the same manner as specified herein for ultimate prequalification sample splices and control bars.

Each time 4 additional ultimate job control sample splices are prepared, 2 of these job control sample splice and associated control bar sets and 2 of the production sample splice and associated control bar sets, together, shall conform to the requirements for ultimate production sample splices in "Production Test Requirements for Ultimate Butt Splices" specified herein.

The 2 remaining job control sample splice and associated control bar sets, along with the 2 remaining production sample splice and associated control bar sets shall be shipped, unless otherwise directed in writing by the Engineer, to the Office of Materials Engineering and Testing Services, 5900 Folsom Boulevard, Sacramento, CA 95819, telephone (916) 227-7251 for quality assurance testing. The 4 sets shall be securely bundled together and identified by location and contract number with weatherproof markings prior to shipment. Bundles containing fewer than 4 sets will not be tested.

Quality assurance testing will be performed to verify that the splices conform to the requirements of "Ultimate Butt Splice Test Criteria" specified herein and Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications. Should more than one sample splice from any quality assurance test fail to conform to these requirements, all splices in the lot represented by the test will be rejected.

Test results for each bundle of 4 sets will be reported in writing to the Contractor within 3 working days after receipt of the bundle by the Office of Materials Engineering and Testing Services. In the event that more than one bundle is received on the same day, one additional calendar day shall be allowed for providing test results for each additional bundle received. A test report will be made for each bundle received. Should the Contractor elect to encase any splices prior to receiving notification from the Engineer, it is expressly understood that the Contractor will not be relieved of the Contractor's responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase any splices pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

MEASUREMENT AND PAYMENT.—Full compensation for conforming to all of the requirements of this section, Bar Reinforcement Splice Testing (Ultimate Butt Splices), shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

10-1.15 PROGRESS SClIEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Progress schedules shall utilize the Critical Path Method (CPM).

Definitions - The following definitions apply to this section "Progress Schedule (Critical Path)":

1) Activity: Any task, or portion of a project, which takes time to complete.
2) Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
3) Controlling Operation: The activity considered at the time by the Engineer, within that series of activities defined as the critical path, which if delayed or prolonged, will delay the time of completion of the contract.
4) Critical Path: The series of activities, which determines the earliest completion of the contract (Forecast Completion Date).
5) Critical Path Method: A mathematical calculation to determine the earliest completion of the contract represented by a graphic representation of the sequence of activities that shows the interrelationships and interdependencies of the elements composing a project.
6) Current Contract Completion Date: The extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in accordance with Section 8-1.06, "Time of Completion," of the Standard Specifications.
7) Early Completion Time: The difference in time between the current contract completion date and the Contractor's scheduled early forecast completion date as shown on the accepted baseline schedule, or schedule updates and revisions.
8) Float: The amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity or group of activities in the network.
9) Forecast Completion Date: The completion date of the last scheduled work activity identified on the critical path.
10) Fragnet: A section or fragment of the network diagram comprised of a group of activities.
11) Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
12) Hammock Activity: An activity added to the network to span an existing group of activities for surnmarizing purposes.
13) Milestone: A marker in a network, which is typically used to mark a point in time or denote the beginning or end of a sequence of activities. A milestone has zero duration, but will otherwise function in the network as if it were an activity.
14) Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
15) Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, and float.
16) Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
17) Update: The modification of the CPM progress schedule through a regular review to incorporate actual progress to date by activity, approved time adjustments, and projected completion dates.
18) Time Scaled Logic Diagram: A schematic display of the logical relationships of project activities, drawn from left to right to reflect project chronology with the positioning and length of the activity representing its duration.
19) Bar Chart (Gantt Chart): A graphic display of scheduled-related information, activities or other project elements are listed down the left side of the chart, date are shown across the top, and activity durations are shown as date-placed horizontal bars.

Pre-construction Scheduling Conference - The Engineer shall schedule and conduct a Preconstruction Scheduling Conference with the Contractor's Project Manager and Construction Scheduler within seven days after the bidder has received the contract for execution. At this meeting, the requirements of this section of the special provisions will be reviewed with the Contractor. The Contractor shall be prepared to discuss its schedule methodology, proposed sequence of operations, the activity identification system for labeling all work activities, the schedule file numbering system, and any deviations it proposes to make from the Stage Construction Plans. The Engineer shall submit a diskette of a scheduling shell project, displaying an activity code dictionary consisting of fields populated with the Caltrans Scope Breakdown Structure Code. The Contractor shall utilize these codes, and may add other codes as necessary, to group and organize the work activities. Periodically the Engineer may request the Contractor to utilize additional filters, layouts or activity codes to be able to further group or summarize work activities.

Also, the Engineer and the Contractor shall review the requirements for all submittals applicable to the contract and discuss their respective preparation and review durations. A11 submittals and reviews are to be reflected on the Interim Baseline Schedule and the Baseline Schedule.

Interim Baseline Schedule - Within 15 days after approval of the contract, the Contractor shall submit to the Engineer an Interim Baseline Project Schedule which will serve as the progress schedule for the first 120 days of the project, or until the Baseline Schedule is accepted, whichever is sooner. The Interim Baseline Schedule shall utilize the critical path method. The Interim Baseline Schedule shall depict how the Contractor plans to perform the work for the first 120 days of the contract. Additionally, the Interim Baseline Schedule shall show all submittals required early in the project, and shall provide for all permits, and other non-work activities necessary to begin the work. The Interim Baseline Schedule submittal shall include a 3 1/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 10 days to review the schedule and to provide comments, including the Contractor's application of the supplied scope breakdown structure. The Interim Baseline Schedule does not require Caltrans approval but all comments are to be implemented into the Baseline Schedule. Re-submittal of the Interim Baseline Schedule is not required. Late review of the Interim Baseline Schedule shall not restrain the submittal of the Baseline Schedule.

Baseline Schedule - Within 60 days, after approval of the contract, the Contractor shall submit to the Engineer a Baseline Project Schedule including the incorporation of all comments provided to the Interim Baseline Schedule. The Baseline Schedule shall have a data date of the day prior to the first working day of the contract. The schedule shall not include any actual start dates, actual finish dates, or constraint dates. The Baseline Progress Schedule shall meet interim milestone dates, contract milestone dates, stage construction requirements, internal time constraints, show logical sequence of activities, and must not extend beyond the number of days originally provided for in the contract.

All task activities shall be assigned to a project calendar. Each calendar shall identify a workweek, and holidays. Use different calendars for work activities that occur on different work schedules.

The Contractor shall not add job inefficiencies or weather days to a project calendar without prior approval by the Engineer.

The Baseline CPM Schedule submitted by the Contractor shall have a sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. The Baseline Schedule shall depict how the Contractor plans to complete the whole work involved, and shall show all activities that defines the critical path. Each construction activity shall have durations of not more than 20 working days, and not less than one working day unless permitted otherwise by the Engineer. All activities in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor.

The Baseline Schedule shall not attribute negative float to any activity. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of either party. Any accepted schedule, revision or update having an early completion date shall show the time between the early completion date and the current Contract Completion Date as "total float".

The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, the Contractor in the next monthly update or revision of the schedule shall correct it.

The Baseline Progress Schedule shall be supplemented with resource allocations for every task activity to a level of detail that facilitates report generation based on labor craft and equipment class for the Contractor and subcontractors. The Contractor shall use average composite crews to display the labor loading of on-site construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. Along with the baseline progress schedule, the Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and equipment classes to be utilized on the contract.

The Contractor shall not create hammock activities for the purpose of resources loading.

The Contractor shall require each subcontractor to submit in writing a statement certifying that the subcontractor has concurred with the Contractor's CPM, including major updates, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities, labor and equipment loading. Should the Baseline Schedule or schedule update, submitted for acceptance, show variances from the requirements of the contract, the Contractor shall make specific mention of the variations in the letter of transmittal, in order that, if accepted, proper adjustments to the project schedule can be made. The Contractor will not be relieved of the responsibility for executing the work in strict accordance with the requirements of the contract documents. In the event of a conflict between the requirements of the contract documents and the information provided or shown on an accepted schedule, the requirements of the contract documents shall take precedence.

Each schedule submitted to the Engineer shall comply with all limits imposed by the contract, with all specified intermediate milestone and contract completion dates, and with all constraints, restraints or sequences included in the contract. The degree of detail shall include factors including, but not limited to:

1) Physical breakdown of the project;
2) Contract milestones and completion dates, substantial completion dates, constraints, restraints, sequences of work shown in the contract, the planned substantial completion date, and the final completion date;
3) ype of work to be performed, the sequences, and the major subcontractors involved;
4) All purchases, submittals, submittal reviews, manufacture, fabrication, tests, delivery, and installation activities for all major materials and equipment.
5) Preparation, submittal and approval of shop and working drawings and material samples, showing time, as specified elsewhere, for the Engineer's review. The same time frame shall be allowed for at least one resubmittal on all major submittals so identified in the contract documents;
6) Identification of interfaces and dependencies with preceding, concurrent and follow-on contractors, railroads, and utilities as shown on the plans or specified in the specifications;
7) Identification of each and every utility relocation and interface as a separate activity, including activity description and responsibility coding that identifies the type of utility and the name of the utility company involved.
8) Actual tests, submission of test reports, and approval of test results;
9) All start-up, testing, training, and assistance required under the Contract;
10)Punchlist and final clean-up;
11) Identification of any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as double shifts, 6-day weeks, specified overtime, or work at times other than regular days or hours; and
12) Identification of each and every ramp closing and opening event as a separate one-day activity, including designation by activity coding and description that it is a north-bound, south-bound, east-bound, west-bound, and entry or exit ramp activity.

The Baseline Schedule submittal shall include a 3 lt2 inch floppy diskette which contains the data files used to generate the schedule, a schedule narrative describing the critical path, and all schedule reports.

The Engineer shall be allowed 15 days to review and accept or reject the baseline project schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 days, at which time a new 15 day review period by the Engineer will begin.

Project Schedule Reports - Schedules submitted to the Engineer including Interim Baseline, Baseline, and update schedules shall include time scaled network diagrams in a layout format requested by the Engineer. The network diagrams submitted to the Engineer shall also be accompanied by four computer-generated mathematical analysis tabular reports for each activity included in the project schedule. The reports (8 1/2" x 11" size) shall include a network diagram report showing the activity columns only, a predecessor and successor report, a resource report (Interim Baseline and Baseline Schedules), and a scheduling and leveling calculation report. The network diagram report shall include, at a minimum, the following for each activity:

1) Activity number and description;
2) Activity codes;
3) Original, actual and remaining durations;
4) Early start date (by calendar date);
5) Early finish date (by calendar date);
6) Actual start date (by calendar date);
7) Actual finish date (by calendar date);
8) Late start date (by calendar date);
9) Late finish date (by calendar date);
10) Identify activity calendar ID;
11) Total Float and Free Float, in work days and;
12) Percentage complete.

Network diagrams shall be sorted and grouped in a format requested by the Engineer reflecting the project breakdown per the Caltrans scope breakdown structure codes. They shall show a continuous flow of information from left to right per the project sorting and grouping codes. E.g., project milestones, submittals sub-grouped by description, and the construction activities subgrouped by the scope breakdown structure. The primary paths of criticality shall be clearly and graphically identified on the networks. The network diagram shall be prepared on E-size sheets (36" x 48"), shall have a title block in the lower right-hand corner, and a timeline on each page. Exceptions to the size of the network sheets and the use of computer graphics to generate the networks shall be subject to the approval of the Engineer.

Schedule network diagrams the tabular reports shall be submitted to the Engineer for acceptance in the following quantities:

a) 2 sets of the Network Diagrams;
b) 2 copies of the tabular reports (8 lt2" x 11" size); and
c) 3 computer diskettes.

Weekly Schedule Meetings - The Engineer and the Contractor shall hold weekly scheduling meetings to discuss the near term schedule activities, to address any long-term schedule issues, and to discuss any relevant technical issues. The Contractor shall develop a rolling 4-week schedule identifying the previous week worked and a 3-week look ahead. It shall provide sufficient detail to address all activities to be performed and to identify issues requiring engineering action or input.

Monthly Update Schedules - The Contractor shall submit a Monthly Update Schedule to the Engineer once in each month within 5 days of the data date. The proposed update schedule prepared by the Contractor shall include all information available as of the 20th calendar day of the month, or other data date as established by the Engineer. A detailed list of all proposed schedule changes such as logic, duration, leadllag, forecast completion date, additions and deletions shall be submitted with the update.

The monthly update of the schedule shall focus on the period from the last update to the current cut-off data date. Changes to activities or logic beyond the data date are classified as revisions and need to be addressed per the schedule revision section of this specification. Activities that have either started or finished shall be reported as they actually occurred and designated as complete, if actually completed. For activities in progress that are forecasted to complete longer than planned, the remaining durations shall be revised, not the original durations. All out of sequence activities are to be reviewed and their relationships either verified or changed.

The Monthly Update Schedule submitted to the Engineer shall be accompanied by a Schedule Narrative Report. The report shall describe the physical progress during the report period, plans for continuing the work during the forthcoming report period, actions planned to correct any negative float, and an explanation of potential delays or problems and their estimated impact on performance, milestone completion dates, forecast completion date, and the overall project completion date. In addition, alternatives for possible schedule recovery to mitigate any potential delay or cost increases shall be included for consideration by the Engineer. The report shall follow the outline set forth below:

Contractor's Schedule Narrative Report Outline:

1) Contractor's Transmittal Letter
2) Work completed during the period
3) Description of the current critical path
4) Description of problem areas
5) Current and anticipated delays
   a) Cause of the delay
   b) Corrective action and schedule adjustments to correct the delay
   c) Impact of the delay on other activities, milestones, and completion dates
6) Changes in construction sequences
7) Pending items and status thereof
   a) Permits
   b) Change Orders
   c) Time Extensions
   d) Non-Compliance Notices
8) Contract completion date(s) status
   a) Ahead of schedule and number of days
   b) Behind schedule and number of days
9) Include updated Network Diagram and Reports

The Contractor shall provide to the Engineer a 3 1/2" electronic disk of the schedule, together with printed copies of the network diagrams and tabular reports described under '~Project Schedule Reports", and the Schedule Narrative Report.

Portions of the network diagram on which all activities are complete need not be reprinted and submitted in subsequent updates. However, the electronic disk file of the submitted schedule and the related reports shall constitute a clear record of progress of the work from award of contract to final completion.

On a date determined by the Engineer, the Contractor shall meet with the Engineer to review the monthly schedule update. At the monthly progress meeting, the Contractor and the Engineer shall review the updated schedule and shall discuss the content of the Narrative Report. The Engineer shall be allowed 10 days after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubrnitted to the Engineer within 5 days, at which time a new 5 day review period by the Engineer will begin. All efforts shall be made between the Engineer and the Contractor to complete the review and the approval process prior to the next update scheduie cutoff date. To expedite the process a second meeting between the Engineer and the Contractor shall be held.

Schedule Revisions - If the Contractor desires to make a change to the accepted schedule, the Contractor shall request permission from the Engineer in writing, stating the reasons for the change, and proposed revisions to activities, logic and duration. The Contractor shall submit for acceptance an analysis showing the effect of the revisions on the entire project. The analysis shall include:

1. An updated schedule not including the revisions. The schedule shall have a data date just pr~or to implementing the proposed revisions and include a project completion date,
2. A revised schedule that includes the proposed revisions. The schedule will have the same data date as the updated schedule and include a project completion date;
3. A narrative explanation of the revisions and their impact to the schedule; and
4. Computer files of the updated schedule and the revised schedule sequentially numbered or renamed for archive (record) purposes.

The Engineer will provide a response within 10 days. No revision to the accepted baseline schedule or the schedule updates shall be made without the prior written approval of the Engineer.

The Engineer will request the Contractor to submit a proposed revised schedule within 15 days when:

a) there is a significant change in the Contractor's operations that will affect the critical path;
b) he current updated schedule indicates that the contract progress is 30 days or more behind the planned schedule, as determined by the Engineer; or
c) the Engineer determines that an approved or anticipated change will impact the critical path, milestone or completion dates, contract progress, or work by other contractors.

The Engineer shall be allowed 10 days to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 10 days, at which time a new 10 day review period by the Engineer will begin. Only upon approval of a change by the Engineer shall it be reflected in the next schedule update submitted by the Contractor.

Schedule Time Extension Requests - When the Contractor requests a time extension due to contract change orders or delays, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of each change or delay on the current contract completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a schedule revision demonstrating how the Contractor proposes to incorporate the Change Order or delay into the current schedule. The schedule shall include the sequence of activities and any revisions to the existing activities to demonstrate the influence of the delay, the proposed method for incorporating the delay, and its impact into the schedule.

Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the anticipated or actual date of the contract change order work performance, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest update of the current schedule in effect at the time the change or delay was encountered.

Time extensions will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of actual delay, or at the time the contract change order work is performed. Float time is not for the exclusive use or benefit of the Engineer or the Contractor, but is an expiring resource available to all parties as needed to meet contract milestones and the contract completion date. Time extensions will not be granted nor will delay damages be paid unless:

a) the delay is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier, and,
b) the delay extends the actual performance of the work beyond the applicable current contract completion date and the most recent date predicted for completion of the project on the accepted schedule update current as of the time of the delay or as of the time of issuance of the contract change order.

Time Impact Analyses shall be submitted in triplicate within 15 days after the delay occurs or after issuance of the contract change order. A schedule file diskette is also to be submitted.

Acceptance or rejection of each Time Impact Analysis by the Engineer will be made within 15 days after receipt of the Time Impact Analysis, unless subsequent meetings and negotiations delay the review. A copy of the Time Impact Analysis accepted by the Engineer shall be returned to the Contractor and the accepted schedule revisions illustrating the influence of the contract change orders or delays shall be incorporated into the project schedule during the first update after acceptance.

Final Schedule Update - Within 15 days after the acceptance of the contract by the Director, the Contractor shall submit a final update of the schedule with actual start and actual finish dates for all activities. This schedule submission shall be accompanied by a certification, signed by an of ficer of the company and the Contractor's Project Manager stating "To the best of my knowledge, the enclosed final update of the project schedule reflects the actual start and completion dates of the activities contained herein."

Equipment and Software - The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updating and producing CPM schedules. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

1) Complete computer system, including keyboard, mouse, 20 inch color SVGA monitor (1,024x768 pixels), Intel Pentium 350 MHz micro processor chip, or equivalent, or better;
2) Computer operating system software, compatible with the selected processing unit, for Windows 95 or later, or equivalent;
3) Minimum sixty-four (64) megabytes of random access memory (RAM);
4) A 3.2 gigabyte minimum hard disk drive, a 1.44 megabyte 3 1/2 inch floppy disk drive, 32x speed minimum CD-ROM drive, Ethernet card and 56k modem;
5) A color-inkjet plotter with a minimum 36Megabytes RAM, capable of 300 dots per inch color, 600 dots per inch monochrome, or equivalent. Capable of printing fully legible, timescaled charts, and network diagrams, in four colors, with a minimum size of 36 inches by 48 inches (E size) and is compatible with the selected system. Capable of plotting 3 E sized sheets within one hour. Plotter paper and ink cartridges throughout the contract.
6) CPM software shall be Primavera Project Planner, the latest version for Windows 95, or later;
7) Scheduler Analyzer Pro or equivalent - a suite of programs to assist in schedule analysis, the latest version for Windows 95' Windows NT or later and,
8) Microsoft Office software' the latest version for Windows 95, Windows NT or later, and McAfee Virus software or equivalent.

The computer hardware and software furnished shall be compatible with that used by the Contractor for the production of the CPM progress schedule required by the Contract, and shall include original instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the baseline schedule. The Contractor shall provide 24 hours of formal training for the Engineer, and three other agents of the department designated by the Engineer, in the use of the hardware and software to include schedule analysis, reporting, and resource and cost allocations. An authorized vendor of Project Primavera shall perform the training.

All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

Payment - Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating and revising CPM progress schedules. Also for maintaining and repairing the computer hardware and training the Engineer in the use of the computer hardware and software as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for progress schedule (critical path) will be made as follows:

Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.

Baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.

Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path) will be made equally for each update.

Final schedule update accepted, then 5 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit an interim baseline, baseline, revised or updated CPM schedule conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retention's for failure to submit acceptable CPM progress schedules shall be additional to all other retention's provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for the project schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing project schedules.

10-1.16 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY

Attention is directed to Sections 5-1.10, "Equipment and Plants," and 7-1.01A(3), "Payroll Records," of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer a list of each piece of equipment and its identifying number, type, make, model and rate code in accordance with the Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rate” which is in effect on the date the work is performed, and the names, labor rates and work classifications for all field personnel employed by the Contractor and all subcontractors in connection with the public work, together with such additional information as is identified below. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used for this mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records," of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 11 days after the contract award for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

The minimum data to be furnished shall comply with the following specifications:

Data Content Requirements.--

1. The Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company name.	Alphanumeric; up to 30 characters.
Federal tax ID	Alphanumeric; up to 10 characters.
State contractor license	Alphanumeric; up to 20 characters.
Company type (prime or sub)	Alphanumeric; up to 10 characters.
Address (line 1).	Alphanumeric; up to 30 characters.
Address (line 2).	Alphanumeric; up to 30 characters.
Address (city).	Alphanumeric; up to 30 chars.
Address (2-letter state code).	Alphanumeric; up to 2 characters.
Address (zip code)	Alphanumeric; up to 14 characters.
Contact name.	Alphanumeric; up to 30 characters
Telephone number (with area code).	Alphanumeric; up to 20 characters.
Company code: short company name.	Alphanumeric; up to 10 characters.
Type of work (Department-supplied codes)	Alphanumeric; up to 30 characters
DBE status (Department-supplied codes)	Alphanumeric; up to 20 characters.
Ethnicity for DBE status (Department-supplied codes).	Alphanumeric; up to 20 characters.
List of laborers to be used on this contract (detail specified below).	
List of equipment to be used on this contract (detail specified below).	

For example, one such set of information for a company might be:

04-072359
XYZ CONSTRUCTION, INC.
94-2991040
AL1649T
SUB
1240 9TH STREET
SUITE 600
OAKLAND
CA
94612
JOHN SMITH
(510) 834-9999
XYZ
PAVING
MBE
BLACK

2. The Contractor shall provide the following information for each laborer who will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Employee ID	Alphanumeric; up to 10 characters.
Last name.	Alphanumeric; up to 20 characters.
First name.	Alphanumeric; up to 15 characters.
Middle name.	Alphanumeric; up to 15 characters.
Suffix	Alphanumeric; up to 15 characters
Labor trade (Department-provided codes).	Alphanumeric; up to 10 characters.
Labor classification (Department-provided codes).	Alphanumeric; up to 10 characters.
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Doubletime hourly rate	Alphanumeric; up to (6,2)
Standby hourly rate.	Alphanumeric; up to (6,2)
Ethnicity (Department-provided codes).	Alphanumeric; up to 20 characters.
Gender.	Alphanumeric; up to 1 characters.

For example, one such set of information might be:

04-072359
XYZ
1249
GONZALEZ
HECTOR
VINCENT
JR.
OPR
JNY
22.75
30.25
37.75
0.00
HISPANIC
M

3. The Contractor shall provide the following information for each piece of equipment that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Company's equipment ID number.	Alphanumeric; up to 10 characters.
Company's equipment description.	Alphanumeric; up to 60 characters.
Equipment type (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment make (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment model (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment rate code (from Department ratebook).	Alphanumeric; up to 10 characters
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Standby hourly rate	Alphanumeric; up to (6,2)
Idle hourly rate.	Alphanumeric; up to (6,2)
Rental flag.	Alphanumeric; up to 1 character.

For example, one such set of information might be:

04-072359
XYZ
B043
CAT TRACTOR D-6C
TRACC
CAT
D-6C
3645
28.08
25.27
14.04
0.00
N

Data Delivery Requirements.--

1. All data described in "Data Requirements" of this section shall be delivered to the Department electronically, on 3 1/2" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.
2. Data of each type described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).
3. The file format for all files delivered to Caltrans shall be standard comma-delimited, plain text files. This type of file (often called "CSV") is the most standard type for interchange of formatted data; it can be created and read by all desktop spreadsheet and desktop database applications. Characteristics of this type of file are:

   - All data is in the form of plain ASCII characters.
   - Each row of data (company, person, equipment) is delimited by a carriage return character.
   - Within rows, each column (field) of data is delimited by a comma character.

4. The files shall have the following columns (i.e., each row shall have the following fields):

   - Contractor info: 16 columns (fields) as specified in "Data Requirements #1", above.
   - Labor info: 15 columns (fields) as specified in "Data Requirements #2", above.
   - Equipment info: 13 columns (fields) as specified in "Data Requirements #3", above.

   For each type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file may contain column headers (in plain text) rather than data, if desired.

5. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:

   - All data shall be uppercase.
   - Company type shall be either "PRIME" or "SUB".
   - Labor trade and classification codes must conform to a list of standard codes that will be supplied by Department.
   - Contractor type of work codes and DBE status codes must conform to a list of standard codes that will be supplied by Department.
   - Ethnicity codes must conform to standard codes that will be supplied by Department.
   - Data in the "gender" column must be either "M" or "F".
   - Data in the "rental equipment" column must be either "Y" or "N".
   - Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the equipment will be identified in the field.) Include manufacturer, rated capacity & trade description
   - Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled "Labor Surcharge and Equipment Rental Rate", which is in effect on the date the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields as directed by the Engineer.

6. The name of each file must indicate its contents, e.g., "XYZlab.csv" for laborers from XYZ Company, Inc. Each floppy disk supplied to Caltrans must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

PAYMENT.-- Payment for providing electronic mobile daily diary computer system data delivery will be made on a lump sum basis. The lump sum bid price for electronic mobile daily diary computer system data delivery will be made according to the following schedule:

The Contractor will receive not more than 2.7 per cent per month of the total bid price for electronic mobile daily diary computer system data delivery .

After the completion of the work, 100 per cent payment will be made for electronic mobile daily diary computer system data delivery less the permanent deduction, if any, for failure to deliver complete weekly electronic mobile daily diary computer system data in each month.

The contract lump sum price paid for electronic mobile daily diary computer system data delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in electronic mobile daily diary computer system data delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit electronic mobile daily diary computer system data delivery conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable electronic mobile daily diary computer system data have not been submitted to the Engineer. Retentions for failure to submit acceptable electronic mobile daily diary computer system data shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable electronic mobile daily diary computer system data will be released for payment on the next monthly estimate for partial payment following the date that acceptable electronic mobile daily diary computer system data is submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of electronic mobile daily diary computer system data delivery. Adjustments in compensation for electronic mobile daily diary computer system data delivery will not be made for any increased or decreased work ordered by the Engineer in furnishing electronic mobile daily diary computer system data.

10-1.27D REMOVE THERMOPLASTIC TRAFFIC STRIPE AND PAVEMENT MARKINGS

Thermoplastic traffic stripe and pavement markings to be removed will be designated by the Engineer.

Nothing in these special provisions shall relieve the Contractor from the Contractor's responsibilities as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

Yellow thermoplastic traffic stripe and pavement markings may contain lead and chromium. Removal of yellow thermoplastic may produce (1) debris containing heavy metals in concentrations that exceed hazardous waste thresholds established by the California Code of Regulations and (2) toxic fumes when heated.

Attention is directed to Section 7-1.06, "Safety and Health Provisions," of the Standard Specifications. Work practices and worker health and safety shall conform to Section 1532.1, "Lead," of Construction Safety Orders Title 8, of the California Code of Regulations.

The Contractor shall submit the written compliance programs required in subsection (e)(2), "Compliance Program," of Section 1532.1, "Lead," of the Construction Safety Orders to the Engineer 3 weeks before starting removal of yellow thermoplastic traffic stripe and pavement markings on the project and at such times when revisions to the programs are required by Section 1532.1, "Lead." Approval of the programs by the Engineer will not be required. The compliance programs shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and monitored by a competent person capable of taking corrective action. Copies of all inspection reports made in accordance with Section 1532.1, "Lead," shall be furnished to the Engineer.

Where grinding or any other method approved by the Engineer is used for the removal of yellow thermoplastic traffic stripes and pavement markings the residue including dust shall be contained and collected immediately. Such collection shall be by a vacuum attachment operating concurrently with the removal operation or by other methods approved in writing by the Engineer. The collected residue shall be stored in properly labeled containers approved for the transport of hazardous waste by the United States Department of Transportation while awaiting any test results required by the disposal facility. The containers shall be handled in such a manner that no spillage will occur. The stored containers shall be enclosed by temporary fence at a location within the project limits approved by the Engineer. The Contractor shall begin disposing of the contained residue in accordance with these special provisions no more than 90 days after accumulating 100 kg of residue.

All debris produced when yellow thermoplastic traffic stripes and pavement markings are removed will remain the property of the State and shall be disposed of by the Contractor at an approved Class 1 disposal facility in accordance with the requirements of the disposal facility operator. The yellow thermoplastic debris shall be hauled by a transporter currently registered with the California Department of Toxic Substances Control using correct manifesting procedures. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing of the yellow thermoplastic debris required by the operator. The Contractor shall submit the name and location of the disposal facility along with the testing requirements to the Engineer 3 weeks before starting removal of yellow thermoplastic traffic stripe and pavement markings on the project. The Engineer will obtain the United States Environmental Protection Agency Identification Number and sign all manifests as the generator. The California Board of Equalization Number (State Generator’s ID) for this project is HYHQ36020776.

The Contractor shall assume that the yellow thermoplastic debris is not regulated under the federal Resource Conservation and Recovery Act (RCRA). Additional disposal costs for debris regulated under RCRA, as determined by test results, will be paid as extra work as provided in Section 4-1.03D of the Standard Specifications.

Full compensation for disposal of yellow thermoplastic debris including testing, temporary storage, and hauling of the material; and Compliance Plan preparation and implementation shall be considered as included in the contract unit price paid per meter for removing yellow thermoplastic stripes and no additional compensation will be allowed therefor.

10-1.33 PILING

Piling shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

Foundation recommendations are included in the "Information Handout" available to the Contractor as provided for in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications.

Attention is directed to "Welding Quality Control" of these special provisions.

Prestressing steel in piling shall be epoxy-coated and shall conform to the previsions in "Prestressing Concrete" elsewhere in these special provisions. Bar reinforcing steel in piling shall be epoxy-coated and conform to the provisions in "Epoxy-Coated Prefabricated Reinforcement," elsewhere in these special provisions."

Attention is directed to "Order of Work" and "Contaminated and Hazardous Material Excavation" elsewhere in these special provisions.

Attention is directed to "Public Safety," of these special provisions. Before performing any pile handling or pile installation operation at any location that is closer than the length of the pile being handled or installed to the edge of any area open to public traffic or public use, the Contractor shall submit to the Engineer, as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, a detail plan of the measures that will be employed to provide for the safety of traffic and the public.

Proposals made by the Contractor to modify the specified pile tip elevations will not be considered.

The fifth paragraph in Section 49-1.04, "Load Test Piles," of the Standard Specifications is amended to read:

Load test anchorages in piles used as anchor piles shall conform to the following requirements:

High strength threaded steel rods shall conform to the provisions for bars in Section 50-1.05, "Prestressing Steel," except Type II bars shall be used.

High strength steel plates shall conform to the requirements in ASTM Designation: A 709, Grade 50.

Anchor nuts shall conform to the provisions in the second paragraph in Section 50-1.06, "Anchorages and Distribution."

The eighth, ninth and tenth paragraphs in Section 49-1.04, "Load Test Piles," of the Standard Specifications are amended to read:

Should the Engineer fail to complete the load tests within the time specified in the special provisions and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in load testing of piles, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays."

The Contractor shall furnish labor, materials, tools, equipment, and incidentals as required to assist the Engineer in the installation, operation and removal of State-furnished steel load test beams, State-furnished jacks, bearing plates, drills, and other test equipment. This work will be paid for as extra work as provided in Section 4-1.03D.

The first and second paragraphs in Section 49-1.05, "Driving Equipment," of the Standard Specifications are amended to read:

49-1.05 Driving Equipment.—Driven piles shall be installed with impact hammers that are approved in writing by the Engineer. Impact hammers shall be steam, hydraulic, air, or diesel hammers. Impact hammers shall develop sufficient energy to drive the piles at a penetration rate of not less than 3 mm per blow at the specified bearing value.

Vibratory hammers shall not be used for installation of piles, unless otherwise shown on the plans or specified in the special provisions.

Hammers with an external combustion engine that are not single action, shall have a transducer that records ram velocity.

Double acting diesel hammers with internal combustion engines shall have a transducer that records bounce chamber pressure.

For hammers with no visual way of observing the ram stroke, a printed readout showing hammer energy during driving operation shall be provided to the Engineer by the Contractor.

The fifth paragraph in Section 49-1.05, "Driving Equipment," of the Standard Specifications is deleted.

Vibratory hammers will not be approved for installation of driven piles except at metering structure and high mast lighting. At the locations of the metering structure and high mast lighting, vibratory hammers may be used up to 4 meters above specified tip elevation.

Difficult pile installation is anticipated due to the presence of soft bay mud overlying dense soils, hazardous and contaminated materials, tidal flow fluctuation, high ground water, sound control, vibration monitoring and traffic control.

For Alternatives 1 and 2, substitutions of the alternative pile type will not be allowed after installation of the load test piles.

The alternatives for 1065 mm diameter piles shall consist of precast prestressed concrete piling and cast-in-steel shell concrete piling as shown on the plans and described in these special provisions.

Concrete for piling shall conform the requirements in "Concrete Structures" elsewhere in these special provisions.

Attention is directed to "Concrete Coatings" elsewhere in these special provisions for Class 625 Alternative "X" and Alternative "Y"; and 610 mm and 1065 mm diameter precast prestressed concrete piling.

Concrete coatings will not be required for load test piles and indicator piles.

Attention is directed to "Clean and Paint Steel Piling" elsewhere in these special provisions for Class 625 Alternative "V" and Alternative "W"; and 1065 mm diameter cast-in-steel shell concrete piling.

Cleaning and painting will not be required for load test piles, indicator piles, anchor piles and isolation casings.

For hammers with no visual way of observing ram stroke, a printed read out showing hammer energy during driving operation shall be provided by the Contractor to the Engineer.

The third paragraph in Section 49-4.04, "Steel Shells," of the Standard Specifications is amended to read:

Steel shells shall conform to the provisions for steel pipe piles specified in Section 49-5, "Steel Piles."

Section 49-5.01, "Description," of the Standard Specifications is amended to read:

49-5.01 Description.—Steel piles shall include structural shape piles and pipe piles. Structural shape steel piles shall be of the rolled section shown on the plans or of the section specified in the special provisions and shall be structural steel conforming to the specifications of ASTM Designation: A 36/A 36M, or at the option of the Contractor, structural steel conforming to the specifications of ASTM Designation: A 572/A 572M.

Steel pipe piling shall conform to the following requirements:

1. Piles shall be of the nominal diameter and the nominal wall thickness as the pipe piles shown on the plans unless otherwise specified in the special provisions.
2. The carbon equivalency (CE) as defined in AWS D 1.1, Section XI5.1, shall not exceed 0.45.
3. The sulfur content shall not exceed 0.05 percent.
4. Piles shall conform to any additional requirements in the special provisions, including but not limited to, tolerances for diameter, edge alignment, end match marking, roundness, and straightness, that are required in order to conform with steel pile splice welding and welding inspection provisions.
5. Steel pipe seams shall be complete penetration welds and shall conform to the requirements of AWS D1.1 and any additional amendments to AWS D1.1 listed herein and in the special provisions. Incomplete penetration welds and defective welds of steel pipe piles shall be repaired or restored to achieve complete joint penetration groove welds.
6. Steel pipe piles that are less than 360 mm in diameter shall conform to the specifications of ASTM Designation: A 252, Grade 2 or 3, and steel pipe piles that are 360 mm and greater in diameter shall conform to the specifications of ASTM Designation: A 252, Grade 3, as amended by the above requirements.

Steel piles shall not be joined by welded lap splicing.

The manufacturer or fabricator of steel piling shall furnish a Certificate of Compliance stating that the piling being supplied conforms to these specifications and to the special provisions. The Certificate of Compliance shall include test reports for tensile, chemical, and any specified nondestructive tests. Samples for testing shall be taken from the base metal, steel, coil or from the manufactured or fabricated piling.

Section 49-5.02, "Splicing," of the Standard Specifications is amended to read:

49-5.02 Splicing.—Steel pile splices shall conform to the requirements of AWS D 1.1 and the special provisions. Structural shape steel piling splices shall be complete joint penetration groove welds. Steel pipe pile splices that are made at a permanent manufacture or fabrication facility, and that are made prior to furnishing the Certificate of Compliance shall be complete penetration welds. Steel pipe pile splices that are made in the field shall be complete joint penetration groove welds.

Ends of steel pipe piling to be spliced that have been damaged during driving shall be removed to a sound and uniform section conforming to the tolerances for diameter, edge alignment and roundness required to meet the steel pile splice welding requirements. Pipe ends shall be field cut using automated guided cutting equipment. Manual flame cutting shall not be used.

Installation.--Jetting to obtain the specified penetration in conformance with the provisions in Section 49-1.05, "Driving Equipment," of the Standard Specifications shall not be used for driven type piles.

In addition to driving, it is anticipated that drilling through the center of the piling to obtain the specified penetration may be necessary. The diameter of the drilled hole shall be less than the inside diameter of the piling. Equipment or methods used for drilling holes shall not cause quick soil conditions or cause scouring or caving of the hole. Method for maintaining hydrostatic head during pile installation is anticipated. Drilling through the center of the piling shall not be allowed 3 meters above specified tip elevation.

At the conclusion of driving the piles to the required penetration, should the top of the soil within the pile be below the bottom of the concrete fill shown on the plans, due to drilling through the center of the piling or due to the formation of a soil plug during driving, the space between the top of the soil within the piling and the bottom of the concrete fill shown on the plans shall be filled with slurry cement backfill conforming to Section 19-3.062, “Slurry Cement Backfill,” of the Standard Specifications.

Material resulting from drilling through the center of the piling shall be contained and disposed of in conformance with the provisions in "Contaminated Material, General," elsewhere in these special provisions.

At least 15 days prior to driving load test piles, the Contractor shall submit for approval, by the Engineer, completed "Pile and Driving Data Form," shown elsewhere in these special provisions, for the hammer that will be used.

Piles with a diameter of 1065 mm shall not deviate from the centerline of pile to the centerline of bent cap not more than 25 mm in any direction.

Piles with a diameter of 610 mm shall not deviate from the centerline of pile to the centerline of bent cap shall be not more than 20 mm in any direction.

The Contractor shall monitor the piles at the bents during driving operations to ensure proper alignment.

Piles exceeding the maximum deviation will be rejected. Rejected piles shall be removed. The Contractor shall submit records of final pile alignment to the Engineer upon completion of each bent.

A pile driving template system shall be used for placement of bent piles. The system shall be designed to maintain the pile plumb during driving operations and to resist lateral loads and all other loads applied during driving operations without deviation of the pile from aligned position.

The pile driving template system for 1065 mm diameter piles shall be designed as a single unit for aligning and placing all piles within the bent. The pile driving template system for 610 mm diameter piles shall be designed to align and place a minimum of 3 piles within the bent.

The Contractor shall submit a pile driving template system plan including details of the system and the procedures to be used for alignment and placement of piles along with the driving system submittal as specified elsewhere in these special provisions. The Engineer will require 15 working days to review plans of the pile driving template system after a complete set has been received, as determined by the Engineer, and prior to installing piling. Should the Engineer fail to complete his review within the time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in the pile driving template system submittal review, an extension of time will be granted as provided in Section 8-1.09, "Right of Way Delays," in the Standard Specifications.

When pile driving template system is no longer needed to align piles, the system shall be removed. The removed system shall become the property of the Contractor and shall be disposed of as provided in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

If the Contractor elects to drive piling a maximum of 50mm below plane of pile cut off as shown on the plans, the pile shall be formed and finished as required for concrete structures in Section 51, “Concrete Structures,” of the Standard Specifications.

At the Contractor’s option, piling may be driven to up to 75 mm above plane of pile cut off as shown on the plans.

PRECAST PRESTRESSED CONCRETE PILING (610 MM and 1065 MM) --Precast prestressed concrete piling shall consist of driven open ended precast prestressed concrete piling partially filled with reinforced cast-in-place concrete.

Concrete filling for the precast prestressed concrete piling shall conform to the requirements of Section 49-4, "Cast-in-Place Concrete Piles," of the Standard Specifications and "Open Ended Cast-In-Steel Shell Concrete Piling" elsewhere in these special provisions.

OPEN ENDED CAST-IN-STEEL-SHELL CONCRETE PILING.--Cast-in-steel-shell concrete piling shall consist of driven open ended steel shells filled with reinforced cast-in-place concrete and shall conform to the requirements of Section 49-4, "Cast-in-Place Concrete Piles," of the Standard Specifications and these special provisions.

The piles shall be installed open ended and no internal plates shall be used.

Cleaning Out Steel Shells.--The Contractor shall submit for approval by the Engineer a cleanout method for open ended cast-in-steel-shell concrete piling. Care shall be taken during cleaning out of open ended steel shells to prevent disturbing the foundation material surrounding the pile. The length of pile to be cleaned out shall be cleaned out to the limits shown on the plans. Equipment or methods used for cleaning out steel shells shall not cause quick soil conditions or cause scouring or caving around or below the piles. Open ended steel shells shall be free of any soil, rock or other material deleterious to the bond between concrete and steel prior to placing reinforcement and concrete.

After the steel shells have been cleaned out, the pile shall be constructed expeditiously in order to prevent deterioration of the surrounding foundation material from the presence of water. Deteriorated foundation materials, including materials that have softened, swollen or degraded, shall be removed from the bottom of the steel shells and shall be disposed of.

Placing Reinforcement.--The reinforcement shall be placed and secured symmetrically about the axis of the pile and shall be securely blocked to clear the sides of the open ended steel shell.

Placing Concrete.--The bottom of the shell shall be sealed in conformance with the provisions in Section 51-1.10, "Concrete Deposited Under Water," of the Standard Specifications. The sealed shell shall then be dewatered and cleaned in conformance with "Cleaning Out Steel Shells" elsewhere in the special provisions.

STEEL PIPE PILING.--Steel pipe piling shall consist of steel shells for open ended cast-in-steel-shell concrete piling and shall conform to these special provisions.

General.--The provisions of Section 49-5, "Steel Piles," of the Standard Specifications shall not apply to steel pipe piling.

Attention is directed to "Welding Quality Control" elsewhere in these special provisions.

Wherever reference is made to the following American Petroleum Institute (API) specifications in the Standard Specifications, on the project plans or in these special provisions, the year of adoption for these specifications shall be as follows:

API Specifications	Year of Adoption
API 2B	1990
API 5L	1995

The manufacturer or fabricator of steel pipe piling shall furnish a certificate of compliance stating that the pipe being supplied conforms with these special provisions. The certificate of compliance shall include test reports for tensile, chemical, and nondestructive tests. Samples for testing shall be taken from the base metal, steel, coil or from the manufactured or fabricated pipe. The certificate of compliance shall be in English with metric units.

Shop welds is defined as pipe pile welds that are made at a manufacture or fabrication facility and that are made prior to furnishing the certificate of compliance.

Field welds is defined as pipe pile welds that are made after the certificate of compliance has been furnished by the manufacturer or fabricator.

Steel pipe piling shall not be lap spliced welded. Longitudinal, circumferential, and spiral welds, including splices, that are shop welds shall be complete penetration welds. Longitudinal, circumferential, and spiral welds, including splices, that are field welds shall be complete penetration groove welds.

Handling devices may be attached to steel pipe piling. Welds attaching these devices shall be aligned parallel to the horizontal axis of the pile and shall conform to the requirements for field welds. Permanent bolted connections shall be corrosion resistant. Prior to making attachments, the Contractor shall submit a plan tot he Engineer that includes the locations, handling and fitting device details and connection details. Attachments shall not be made to the steel pipe piling until the plan is approved in writing by the Engineer. The Engineer shall have 7 calendar days to review plan. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the plan, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Each length of steel pipe piling shall be marked in conformance with the requirements of ASTM 252 and also with end match markings as required by the Contractor.

All steel pipe piling ends damaged during driving shall be removed to a sound and uniform section conforming to the dimensions and tolerances specified for the pipe. Said pipe ends shall be field cut using automated guided cutting equipment and manual flame cutting shall not be used.

Manufactured Steel Pipe.--Manufactured steel pipe is defined as pipe that is produced at a facility where an automatic fusion welder, electric resistance welder, or seamless pipe operation is used in conformance with ASTM A252, ASTM A53, ASTM A135, API 5L, or AWWA C200; where this steel pipe can have lengths at least 30 feet long without a circumferential splice; and where this manufacturing can be done on a daily basis.

Manufactured steel pipe used for steel pipe piling and shall conform with the requirements of ASTM 252, Grade 3 and the following requirements:

1. The carbon equivalency (CE) as defined in AWS D 1.1, Section X15.1 shall not exceed 0.45.
2. The sulfur content shall not exceed 0.05%.
3. The outside circumference of the steel shell ends shall not vary more than plus or minus 9.52 mm from the size shown on the plans. The maximum allowable edge alignment for pipe is 0.1875 times the wall thickness or 1.60 mm, which ever is less.
4. Steel pipe pile straightness shall conform to the requirements of API 5L, Section 7.6, "Straightness."
5. Shop welds shall be made by either an automatic fusion weld or electric resistance weld process.
6. Twenty-five percent of each longitudinal, circumferential and spiral shop weld shall be non-destructively tested by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1 or API Specification 5L. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections.

Fabricated Steel Pipe.--Fabricated steel pipe is defined as pipe produced at a facility where a variety of steel fabrication including roll forming and welding steel plate into pipe is performed, where this pipe is at least 19.05 mm in wall thickness, and where this pipe is produced in conformance with API 2B, and where this fabrication can be done on a daily basis.

Fabricated steel pipe used for steel pipe piling shall conform to API 2B and the following requirements:

1. API site license and API monogram are not required.
2. Fabricated steel pipe piling shall conform to the physical and chemical requirements of ASTM 252, Grade 3; and the carbon equivalency (CE) as defined in AWS D 1.1, Section X15.1 shall not exceed 0.45; and the sulfur content shall not exceed 0.05%.
3. Weld filler metal shall conform to the requirements of AWS D1.5 for ASTM A709, Grade 50 steel.
4. Twenty-five percent of each longitudinal and circumferential shop weld shall be non-destructively tested by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1 or API 5L. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections.

Field Welding.--Field welding of steel pipe piling shall conform to the requirements of AWS D1.1, "Welding Quality Control," elsewhere in these special provisions, weld joint details shown on the plans and the following requirements:

1. Match marking of pipe ends at the manufacture or fabrication facility is recommended for piling to ensure weld joint fit-up. Prior to positioning any 2 sections of steel pipe to be spliced by field welding, including those that have been match marked at the manufacture or fabrication facility, the Contractor shall equalize the offsets of the pipe ends to be joined and match mark the pipe ends.

2. Welds made in the flat position or vertical position (where the longitudinal pipe axis is horizontal) shall be single-vee groove joints. Welds made in the horizontal position (where the longitudinal pipe axis is vertical) shall be single-bevel joints. Joint fit-ups shall conform to the requirements for tubular sections in AWS D1.1 and these special provisions.
3. The minimum thickness of the backing ring shall be 6.35 mm. All splices in the backing ring shall be made by complete penetration welds. These welds shall be completed and inspected prior to final insertion into a pipe end. Attachment of backing rings to pipe ends shall be done using the minimum size and spacing of tack welds that will securely hold the backing ring in place. Tack welding shall be done in the root area of the weld splice. Cracked tack welds shall be removed and replaced prior to subsequent weld passes. The gap between the backing ring and the steel pipe piling wall shall be no greater than 1.60 mm. One localized portion of the splice, that is equal to or less than a length that is 20% of the outside circumference of the pipe, as determined by the Engineer, may be offset by a gap equal to or less than 6.35 mm provided that this localized portion is first seal welded using shielded metal arc E7016 or E7018 electrodes. The Contractor shall mark this localized portion so that it can be referenced during non destructive testing (NDT). Backing rings shall be sufficiently wide so that they will not interfere with the interpretation of the NDT.
4. The root opening tolerance may be a maximum of 6.35 mm for steel pipe with an outside diameter greater than 1067 mm and with a wall thickness greater than 25 mm, when necessary to maintain the perpendicular alignment of adjoining pipe.
5. Weld filler metal shall conform to the requirements shown in Table 4-1 of AWS D1.5 for ASTM A709, Grade 50 steel.
6. For all field welding, including attaching backing ring and making repairs, the preheat and interpass temperature shall be in accordance with AWS D1.1, Section 3.5 "Minimum Preheat and Interpass Temperature Requirements," with Table 3.2, Category C; and the minimum preheat shall be 65° C, regardless of the pipe pile wall thickness or steel grade. If unforeseen events occur and welding is disrupted, the minimum interpass temperature shall be maintained until the welding is resumed.
7. Welds shall not be water quenched. Welds shall be allowed to cool unassisted.
8. Splices made by field welding steel pipe piling with wall thickness equal to or less than 25 mm shall be non destructive tested as follows:

   Each field weld shall be magnetic particle tested, including splices that are made onto a portion of the steel pipe piling that has been installed and including repairs made to a splice weld. Testing shall be done at locations selected by the Engineer. The length of a splice weld, not including repairs, that is magnetic particle tested shall have a cumulative length that is equal to 25% of the pipe outside circumference. The Engineer may select several locations on a given splice for magnetic particle testing (MT), and MT shall be performed after the root pass as well as after the top cover pass. The top cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections. If repairs are required in a portion of the weld, additional MT shall be performed. The additional MT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional MT is performed, and if more repairs are required, and if the repairs have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall be magnetic particle tested.
9. Splices made by field welding steel pipe piling with wall thickness over 25 mm shall be non destructive tested as follows:

   Each field weld shall be radiograph tested, including splices that are made onto a portion of the steel pipe piling that has been installed and including repairs made to a splice weld. Testing shall be done at locations selected by the Engineer. The length of a splice weld, not including repairs, that is radiograph tested shall have a cumulative length that is equal to 25% of the pipe outside circumference. The Engineer may select several locations on a given splice for radiograph testing (RT), and RT shall be performed after the root pass as well as after the top cover pass. The top cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections. If repairs are required in a portion of the weld, additional RT shall be performed. The additional RT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional RT is performed, and if more repairs are required, and if the repairs have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall be radiograph tested.

10. For steel pipe piling, including bar reinforcement in the piling, the Engineer will require not more than 12 hours to review the "Welding Report, " as specified in "Welding Quality Control" elsewhere in these special provisions, and respond in writing after all the required items have been received. No field welded steel pipe piling shall be installed, and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing. Should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.
11. At the Contractor's option, a steel pipe pile may be re-tapped to prevent pile set-up; however, the field welded splice shall remain at least 915 mm above the work platform until that splice is approved in writing by the Engineer.

Driving System Submittal--Prior to installing driven piling, the Contractor shall provide a driving system submittal, including driveability analysis, in accordance with provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Each proposed driving system submitted shall demonstrate driving the pile to specified tip elevation without damage by the proposed driving system. All proposed driving systems (i.e., each hammer that may be brought onto the site) shall be included in the submittal.

The driving system submittal shall contain an analysis showing that the proposed driving systems will install piling to the specified tip elevation and specified bearing. Driving systems shall generate sufficient energy to drive the piles with stresses not more than 95 percent of the specified yield strength of the steel pile or unfilled steel shell. Submittals shall include the following:

1. Complete description of soil parameters used, including soil quake and damping coefficients, skin friction distribution, ratio of shaft resistance to nominal compression resistance, any assumptions made regarding the formation of soil plugs, and any assumptions made regarding drilling through the center of open ended steel shells.
2. List of all hammer operation parameters assumed in the analysis, including fuel settings, stroke limitations, and hammer efficiency.
3. Driveability studies that are based on a wave equation analysis using a computer program that has been approved by the Engineer. Driveability studies shall model the Contractor's proposed driving systems, including the hammers, capblocks, and pile cushions, as well as determine driving resistance and pile stresses for assumed site conditions. Separate analyses shall be completed at elevations above the specified tip elevations where difficult driving is anticipated.

   Studies shall include plots for a range of pile compression capacities above and below the nominal compression resistance shown on the plans. Plots shall include the following:
   a. Pile compressive stress versus blows per 0.30m.
   b. Pile tensile stress versus blows per 0.30m.
   c. Nominal compression resistance versus blows per 0.30m.

   When the driveability analysis hammers indicate that open ended pipe pile penetration rates are less than 0.30 meters per 200 blows and the driving stresses will exceed 80% of the specified yield strength of the pipe, the study shall include assumptions for drilling through the center of open ended pipe piles.
4. Copies of all test results from any previous pile load tests, dynamic monitoring, and all driving records used in the analyses.
5. Completed "Pile and Driving Data Form," which is shown elsewhere in these special provisions.

The driving system submittal shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. The Contractor shall allow the Engineer 15 working days to review a driving system submittal after a complete set has been received, as determined by the Engineer, and prior to installing piling. Should the Engineer fail to complete his review within the time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in the driving system submittal review, the delay will be considered a right of way delay as specified in Section 8-1.07, "Liquidated Damages," in the Standard Specifications.

The Contractor shall use the driving system and installation methods described in the approved driving system submittal. Any change in hammers from those submitted and approved by the Engineer shall also be meet the requirements for driving system submittals. Revised and new driving system submittals shall be approved by the Engineer prior to using corresponding driving systems on production piling. The Contractor shall allow the Engineer 15 working days to review each revised and each new driving system submittal after a complete set has been received, as determined by the Engineer.

Approval of pile driving equipment shall not relieve the Contractor of his responsibility to drive piling free of damage to the specified penetration.

Full compensation for driving system submittals shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

Load Test Piles

Load testing of piles, consisting of static load testing, dynamic monitoring of piles, and bearing acceptance analysis, shall conform to the provisions in Section 49-1.04, "Load Test Piles," of the Standard Specifications and these special provisions.

The Contractor shall notify the Engineer in writing not less than 15 days in advance of driving load test piles and indicator piles to be load tested.

At the Contractor's option, after pile load testing is completed and as approved by the Engineer in writing, the non-production piles may be used to facilitate the Contractor's operations. When non-production piles are not longer required, the piles shall be removed. Removal of piles shall conform to the requirements in "Bridge Removal" elsewhere in these special provisions. Non-production piling shall be removed to at least 1.5 m below ground line or at the Contractor’s option, the piling may be removed completely.

The third sentence of paragraph 7 of Section 49-1.04 "Load Test Piles," of the Standard Specifications is deleted.

Unless otherwise specified or shown on the plans, steel plates welded to the load test and anchor piling shall conform to the requirements in ASTM Designation: A 709/A 709M, Grade 36, and shall be welded to the piling in conformance with the requirements in AWS D1.1.

Pipe, couplings and fittings shall be commercially available materials of the types and ratings shown on the plans.

The minimum time required for a test pile to set prior to static load testing is listed as follows:

TEST SITE LOCATION	MINIMUM SET PERIOD, CALENDAR DAYS
A	28
B	28

The minimum set period shall begin after the initial driving of the pile.

The control locations for Test Site Location A is from Sta 30+31 to Sta 68+60 and Test Site Location B is from Sta 68+61 to Sta 109+00.

The Engineer will require not more than 15 working days at each test site location to perform static load testing. Concurrent load testing at more than one test site location will not be performed.

Dynamic Monitoring.--Driven test piles and anchor piles will be monitored during the final 8 m of driving for dynamic response to the driving equipment. Isolation casing will not be dynamically monitored. Monitoring will be done by State forces using State-furnished dynamic pile analyzer monitoring instruments.

Dynamic monitoring shall be performed on piles shown on the plans at each test site:

Dynamic Monitoring Schedule					
Test Site Location	Redrive at:				
	End of Initial Driving	24 hours	7 days	21 days	Completion of Load Testing
A	√	√	√	√	√
B	√	√	√	√	√

Redriving of piles shall apply to only indicator piles and test piles.

Final redriving of piles after completion of load testing shall apply to only indicator piles.

The Engineer will determine which piles will receive dynamic monitoring from each control location. Piles to be dynamically monitored shall be made available to State forces 2 working days prior to driving. They shall be safely supported a minimum of 150 mm off the ground in a horizontal position on at least 2 support blocks. The pile shall be positioned so that State forces have safe access to the entire pile length and circumference for the installation of anchorages and control marks for monitoring. The Contractor shall rotate the piles on the blocks as directed by the Engineer.

Piles to be dynamically monitored shall be prepared and driven in the following sequence:

1. Prior to driving, the Contractor shall rotate and align the pile in the driving leads such that penetration markings are visible as directed by the Engineer
2. The Contractor shall temporarily suspend driving operations when the pile tip is 8 m above the elevation to which the tip is required to be finally driven.
3. The Contractor shall bolt the 0.5-kg instrument package securely to the tapped walls of the pile as shown on the plans. The Contractor shall also connect electrical cables to the instrument package as directed by the Engineer.
4. Driving operations shall resume as directed by the Engineer. Driving operations shall be suspended approximately 0.5-m above the required tip elevation, as directed by the Engineer.
5. The Contractor shall remove the cables and instrument package from the pile and deliver them to the Engineer.
6. After a minimum of 24 hours, the first redrive shall be performed. Subsequent redrives shall be performed according to the dynamic monitoring schedule shown above. The Contractor shall install the instrument package on the pile and attach the cables and resume redriving, as directed by the Engineer.
7. The Contractor shall remove the cables and instruments from the monitored pile and deliver them to the Engineer.
8. Within 3 working days of completion of the static load testing at a given test site, redriving shall be performed on the indicator piles. The Contractor shall install the instrument package on the piling and attach cables. Driving operations shall resume as directed by the Engineer. Upon completion of driving, the Contractor shall remove the cables and instruments from the monitored pile and deliver them to the Engineer.

The Contractor shall be responsible for any damage to the State's cables and instruments caused by the Contractor's operations, and shall replace damaged cables or instruments in kind.

Removal of piles and isolation casings shall conform to the requirements in Section 15-4, "Bridge Removal," of the Standard Specifications, after all pile load testing is complete as approved in writing by the Engineer. All holes resulting from removal of piling and isolation casing outside of the waterway shall be backfilled in conformance with the requirements of Section 19-3.062 "Slurry Cement Backfill," of the Standard Specifications. No additional compensation or delays will be granted for removal of piling and isolation casing.

Wave Equation.--The second paragraph of Section 49-1.03, "Determination of Length," and paragraphs 3 and4 of Section 49-1.08, "Bearing Value and Penetration," of the Standard Specifications shall not apply. The Engineer will conduct a penetration and bearing analysis in conjunction with pile load testing and dynamic monitoring of the piles and develop bearing acceptance criteria curves. Penetration and bearing analyses will be based on a wave equation analysis.

The Contractor shall allow the Engineer 15 working days to provide the bearing acceptance criteria curves for production piles.

Should the Engineer fail to provide the bearing acceptance criteria curves for production piles within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in providing the bearing acceptance criteria curves, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. Production piles, other than load test and anchor piles, shall not be installed until the bearing acceptance criteria curves for piles within the corresponding control location have been provided by the Engineer.

NONDESTRUCTIVE TESTING FOR STEEL PIPE PILING

Description.--Steel pipe piling shall consist of steel shells for open ended cast-in-steel-shell concrete piling and shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

General.--Wherever reference is made to the following American Petroleum Institute (API) specifications in the Standard Specifications, on the project plans or in these special provisions, the year of adoption for these specifications shall be as follows:

API Codes	Year of Adoption
API 2B	1990
API 5L	1995

Handling devices may be attached to steel pipe piling. Welds attaching these devices shall be aligned parallel to the horizontal axis of the pile and shall conform to the requirements of "Field Welding" specified herein. Permanent bolted connections shall be corrosion resistant. Prior to making attachments, the Contractor shall submit a plan to the Engineer that includes the locations, handling and fitting device details and connection details. Attachments shall not be made to the steel pipe piling until the plan is approved in writing by the Engineer. The Engineer shall have 7 calendar days to review the plan. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the plan, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Each length of steel pipe piling shall be marked in conformance with the requirements of ASTM Designation: A 252 and also with end match markings as required by the Contractor.

Personnel performing ultrasonic testing (UT) for field welds will be required to verify their qualifications prior to performing nondestructive testing by both written and practical exams. Information regarding these exams are available at the Transportation Laboratory.

Manufactured Steel Pipe.--Manufactured steel pipe is defined as pipe that is produced at a facility where an electric fusion welder, electric resistance welder, or seamless pipe operation is used in conformance with ASTM Designations: A 252, A 53, A 135, A 139, API 5L, or AWWA C200; where this steel pipe can have lengths at least 9 m long without a circumferential splice; and where this manufacturing can be done on a daily basis.

Manufactured steel pipe used for steel pipe piling shall conform to the following requirements:

1. The outside circumference of the steel pipe piling end shall not vary by more than 10 mm from that corresponding to the diameter shown on the plans.
2. The maximum allowable misalignment for adjacent steel pipe pile edges to be welded shall be 0.1875 times the wall thickness, but not more than 1.6 mm.
3. Steel pipe pile straightness shall conform to the requirements of API 5L, Section 7.6, "Straightness."
4. Welds made at a permanent manufacturing facility shall be made by either an automatic fusion weld or an electric resistance weld process.
5. Twenty-five percent of each longitudinal, circumferential and spiral weld made at a permanent manufacturing facility shall receive nondestructive testing (NDT) by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1. Records of this testing shall be made available to the Engineer upon request. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed. The additional NDT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional NDT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall receive NDT.

Fabricated Steel Pipe.--Fabricated steel pipe is defined as pipe produced at a facility where a variety of steel fabrication including roll forming and welding steel plate into pipe is performed, where this pipe is at least 19 mm in wall thickness, where this pipe is produced in conformance with API 2B, and where this fabrication can be done on a daily basis.

Fabricated steel pipe used for steel pipe piling shall conform to API 2B and the following requirements:

1. API site license and API monogram are not required.
2. Weld filler metal shall conform to the requirements of AWS D1.5 for the welding of ASTM Designation: A 709, Grade 50 steel, except that the qualification, pretest and verification test requirements need not be conducted provided that certified test reports are provided for the consumables to be used.
3. Twenty-five percent of each longitudinal and circumferential weld made at a permanent fabrication facility shall receive NDT by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1. Records of this testing shall be made available to the Engineer upon request. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed. The additional NDT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional NDT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall receive NDT.

Field Welding.--Field welding of steel piling is defined as welding performed after the certificate of compliance has been furnished by the manufacturer or fabricator and shall conform to the following requirements:

1. Match marking of pipe ends at the manufacturing or fabrication facility is recommended for piling to ensure weld joint fit-up. Prior to positioning any 2 sections of steel pipe to be spliced by field welding, including those that have been match marked at the manufacturing or fabrication facility, the Contractor shall equalize the offsets of the pipe ends to be joined and match mark the pipe ends.
2. Welds made in the flat position or vertical position (where the longitudinal pipe axis is horizontal) shall be single-vee groove welds. Welds made in the horizontal position (where the longitudinal pipe axis is vertical) shall be single-bevel welds. Joint fit-ups shall conform to the requirements for tubular sections in AWS D1.1 and these special provisions.
3. The minimum thickness of the backing ring shall be 6 mm and the ring shall be continuous. Radiographic, magnetic particle or ultrasonic testing shall be used to assure soundness of the backing ring per requirements in AWS D1.1, Section 6. All splices in the backing ring shall be made by complete penetration welds. These welds shall be completed and inspected prior to final insertion into a pipe end. Attachment of backing rings to pipe ends shall be done using the minimum size and spacing of tack welds that will securely hold the backing ring in place. Tack welding shall be done in the root area of the weld splice. Cracked tack welds shall be removed and replaced prior to subsequent weld passes. The gap between the backing ring and the steel pipe piling wall shall be no greater than 2 mm. One localized portion of the splice, that is equal to or less than a length that is 20% of the outside circumference of the pipe, as determined by the Engineer, may be offset by a gap equal to or less than 6 mm provided that this localized portion is first seal welded using shielded metal arc E7016 or E7018 electrodes. The Contractor shall mark this localized portion so that it can be referenced during NDT. Backing rings shall have a minimum width of 1 1/2 times the thickness of the pile to be welded so that they will not interfere with the interpretation of the NDT.
4. For steel pipe with an outside diameter greater than 1.1 m and with a wall thickness greater than 25.4 mm, the root opening tolerances may be increased to a maximum of 5 mm over the specified tolerances.
5. Weld filler metal shall conform to the requirements shown in Table 4-1 of AWS D1.5 for the welding of ASTM Designation: A 709, Grade 50 steel, except that the qualification, pretest and verification test requirements need not be conducted provided that certified test reports are provided for the consumables to be used.
6. For field welding, including attaching backing ring and making repairs, the preheat and interpass temperature shall be in accordance with AWS D1.1, Section 3.5 "Minimum Preheat and Interpass Temperature Requirements," with Table 3.2, Category C; and the minimum preheat and interpass temperature shall be 66° C, regardless of the pipe pile wall thickness or steel grade. In the event welding is disrupted, preheating to 66° C must occur before welding is resumed.
7. Welds shall not be water quenched. Welds shall be allowed to cool unassisted.

8. Splices made by field welding steel pipe piling shall receive NDT as follows:

Radiographic testing (RT) shall be used for each field weld, including splices that are made onto a portion of the steel pipe piling that has been installed and any repair made to a splice weld. Testing shall be done at locations selected by the Engineer. The length of a splice weld, not including repairs, where RT is to be used, shall have a cumulative length that is equal to 25% of the pipe outside circumference. The Engineer may select several locations on a given splice for RT. The top cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional RT shall be performed. The additional RT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional RT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall be radiographically tested.

At the option of the Contractor, ultrasonic testing may be substituted as the NDT method for splices made by field welding steel pipe piling, as follows:

Ultrasonic testing (UT) shall be used for each field weld, including splices that are made onto a portion of the steel pipe piling that has been installed and any repair made to a splice weld. Testing shall be done at locations selected by the Engineer. The length of a splice weld, not including repairs, where UT is to be used, shall have a cumulative length that is equal to 25% of the pipe outside circumference. The Engineer may select several locations on a given splice for UT. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional UT shall be performed. The additional UT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional UT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall be ultrasonically tested.

9. For steel pipe piling, including bar reinforcement in the piling, the Engineer shall be allowed 12 hours to review the "Welding Report," specified in "Welding Quality Control" of these special provisions, and respond in writing after all the required items have been received. No field welded steel pipe piling shall be installed, and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing. Should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

10. At the Contractor's option, a steel pipe pile may be re-tapped to prevent pile set-up; however, the field welded splice shall remain at least one meter above the work platform until that splice is approved in writing by the Engineer.

MEASUREMENT AND PAYMENT (PILING)

Measurement and payment for the various types and classes of piles shall conform to the provisions in Sections 49-6.01, "Measurement," and 49-6.02, "Payment," of the Standard Specifications and these special provisions.

When the diameter of open ended cast-in-steel shell concrete piling is shown on the plans as 600 mm or larger, reinforcement in such piling will be paid for as bar reinforcing steel (epoxy coated) (bridge).

Full compensation for furnishing and placing concrete and epoxy coated reinforcement in the void of the precast prestressed concrete piling as shown on the plans shall be considered as included in the contract unit price paid for drive pile and no separate payment will be made therefor.

Full compensation for furnishing and placing additional testing reinforcement, load test anchorages, and for cutting off test piles as specified shall be considered as included in the contract price paid for piling of the type or class shown in the Engineer's Estimate, and no additional compensation will be allowed.

No additional compensation or extension of time will be made for additional foundation investigation, installation and testing of indicator piling, cutting off piling and restoring the foundation investigation and indicator pile sites, and review of request by the Engineer.

The sixth paragraph in Section 49-6.02, "Payment," of the Standard Specifications is amended to read:

> If precast prestressed concrete piling or steel pipe piling is manufactured or fabricated more than 480 air line kilometers from both Sacramento and Los Angeles, additional shop inspection expenses will be sustained by the State. Whereas it is and will be impractical and extremely difficult to ascertain and determine the actual increase in such expenses, it is agreed that payment to the Contractor for furnishing piling of the types shown in the Engineer's Estimate will be reduced $5000 for each manufacture or fabrication site located more than 480 air line kilometers from both Sacramento and Los Angeles and an additional $3000 ($8000 total) for each manufacture or fabrication site located more than 4800 air line kilometers from both Sacramento and Los Angeles.

Full compensation for cleaning out the open ended steel shells prior to installing reinforcement and filling with concrete, for disposing of materials removed from inside the pile including hazardous and contaminated material, and for placing seal course concrete and dewatering the open ended steel shells, as shown on the plans, and as specified in these special provisions, and as directed by the Engineer shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

Full compensation for conforming to the requirements of "Steel Pipe Piling" of these special provisions shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Full compensation for redriving monitored piles, for providing access for the Engineer, dewatering during monitoring, tapping holes in piles, furnishing and installing plates, and for installing and removing the instruments from the pile and removal of the pile shall be considered as included in the contract unit price paid for drive pile and no separate payment will be made therefor. The length of piling to be paid as furnish piling of the classes listed in the Engineer's Estimate shall include the lengths that monitored piles are redriven.

Test piles will be measured and paid for as furnish piling and drive pile of the sizes shown on the plans and listed in the Engineer's Estimate.

Anchor piles will be measured and paid for as furnish anchor piling and drive anchor pile of the sizes shown on the plans and listed in the Engineer's Estimate.

Full compensation for furnishing, constructing and removing pile driving template system including submittal of system for review shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

Full compensation for furnishing, driving, cleaning out and disposing of materials removed in isolation casings, including hazardous and contaminated material, and removing isolation casings shall be considered as included in the contract prices paid for the various items of pile work involved and no separate payment will be allowed therefor.

Full compensation for cleaning out and for disposing of materials removed, including hazardous and contaminated material, in open ended concrete piles shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

Full compensation for drilling through the center of piling, disposing of material resulting from drilling, and furnishing and placing slurry cement backfill shall be considered as included in the contract unit price paid for drive pile, and no additional compensation will be allowed therefor.

Driving piles a maximum of 50 mm below plane of pile cut off, forming and finishing the pile will be measured and paid for by the meter as furnish piling of the size shown on the plans and listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

Driving piles up to an additional 75 mm above plane of pile cut off will be measured and paid for by the meter as furnish piling of the size shown on the plans and listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

10-1.35 BRIDGE SUPERSTRUCTURE

The bridge superstructure shall be one of the three alternatives as shown on the plans. The alternatives shall conform to the details shown on the plans, the provisions in Section 49, "Piling," Section 50, "Prestressing Concrete," and Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

The superstructure shall be constructed or erected in a span by span sequence. The superstructure may be constructed or erected segmentally in longitudinal or transverse segments.

The Contractor shall provide details for any additional construction joints and mating precast joints not shown on the plans. The design of these joints shall be equal to or stronger than the detailed monolithic design.

The Contractor shall submit to the Engineer working drawings and design calculations for the erection sequence and placement operations for the superstructure. The drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. Five sets of the drawings and one copy of the design calculations shall be furnished.

The working drawings shall conform to the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings for any part of the erection sequence and placement operations for the superstructure shall include, but not be limited to, connection details, erection and removal plans, and equipment lists.

The working drawings shall include descriptions and values of all loads, including construction equipment and vehicular live loads, descriptions of equipment to be used, and complete details and calculations for supporting all loads imposed.

The Contractor shall allow six weeks for the review of any erection sequence and placement operation working drawings after complete drawings, calculations and all support data have been submitted to the Engineer.

Should the Engineer fail to complete the review within the time allowed and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in erection sequence and placement operation working drawing review, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

During construction, each precast concrete element is designed to carry dead loads and construction live loads to aid the span by span construction sequence. The precast girders and bent caps are designed to accommodate the dead loads and construction live loads as shown on the plans. The piles may carry the following loads during a construction sequence:

		ALLOWABLE CONSTRUCTION LOADINGS		
Pile Type	Nominal Resistance, kN	Vertical Load, kN	Horizontal Load, kN	Moment, kN-m
1065 mm PC/PS Concrete				
Bents 315-569	4360	2180	55	500
Bents 571-919	4360	2180	75	500
Bents 921-1141	4360	2180	90	500
1065 mm CISS				
Bents 315-570	6230	3115	55	500
Bents 573-918	6230	3115	75	500
Bents 921-1140	6230	3115	90	500
610 mm PC/PS Concrete				
Bents 315-570	1130	565	15	150
Bents 571-920	1130	565	20	150
Bents 921-1141	1130	565	25	150

The value of the loads are based on pile set up of 24 hours after installation.

Full compensation for any of the above options of construction shall be considered as included in the contract prices paid for the items of work involved in constructing the bridge superstructure and no additional compensation will be allowed therefor.

ENGINEER'S ESTIMATE
04-045014

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
115 (S)	047813	DRIVE PRECAST PRESTRESSED CONCRETE PILE (610 MM)	EA	4900		
116	047814	FURNISH ANCHOR PILING (PP 355.5 X 11.125)	M	277		
117 (S)	047815	DRIVE ANCHOR PILE (PP 355.5 X 11.125)	EA	8		
118 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	22 090		
119 (F)	511106	DRILL AND BOND DOWEL	M	364		
120	512350	FURNISH PRECAST PRESTRESSED CONCRETE SLAB	EA	5676		
121	047816	FURNISH PRECAST CONCRETE BENT CAP (5M - 10M)	EA	1617		
122 (S)	047817	ERECT PRECAST PRESTRESSED CONCRETE SLAB	EA	5676		
123 (S)	047818	ERECT PRECAST CONCRETE BENT CAP	EA	1617		
124 (S)	519121	JOINT SEAL (TYPE B - MR 30 MM)	M	25		
125 (S)	519123	JOINT SEAL (TYPE B - MR 50 MM)	M	1720		
126 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	KG	2 295 000		
127	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____

NOTE:
ALTERNATIVE 1, A prestressed concrete double T girder bridge,
ALTERNATIVE 2, A prestressed concrete bulb T girder bridge with precast prestressed deck panels, and
ALTERNATIVE 3, A prestressed concrete voided slab bridge,
set forth the items necessary for construction of the San Mateo-Hayward Bridge Widen (Bridge No. 35-0054) in accordance with the 3 alternatives shown on the plans and described under "Description of Bridge Work" of the special provisions.
The bidder shall submit prices for the work involved in Items 1 through 79 and Item 127, plus all the work of the items included in the alternative selected by the bidder. The alternative for which the prices are submitted shall be at the option of the bidder.
Bids will be compared on the basis of the lowest total bid for the entire work, regardless of the alternative upon which the bid was submitted.
The Contractor will be required to construct the alternative design upon which his bid was submitted and the award of the contract was based.

REVISED PER ADDENDUM NO. 1 DATED OCTOBER 1, 1999

04-045014

CONTRACTOR'S INQUIRY RESPONSE NO. 1

October 1, 1999

CALTRANS TOLL BRIDGE RETROFIT PROGRAM ADDRESS

The responses to bidder' inquiries, unless incorporated into a formal addenda to the contract, are not a part of the contract and are provided for the bidder's convenience only. In some instances, the question and answer may represent a summary of the matters discussed rather than a word-for-word recitation. The responses may be considered along with all other information furnished to prospective bidders for the purpose of bidding on the project. The availability or use of information provided in the responses to contractors' inquiries is not to be construed in any way as a waiver of the provisions of Section 2-1.03 of the Standard Specifications or any other provision of the contract, the plans, Standard Specifications or Special Provisions, nor to excuse the contractor from full compliance with those contract requirements. Bidders are cautioned that subsequent responses or contract addenda may affect or vary a response previously given.

The Caltrans District 4 Office is located at 111 Grand Avenue, Oakland, Ca 94612. The mailing address is P.O. Box 23660, Oakland, Ca 94623-0660. The Duty Senior telephone number is (510) 286-5209, and the fax number for Contractor's inquiries submittals is (510) 286-5171.

1. I am not able to make contact with anyone at the Plans and Bid Documents 916-654-4490. I would like to obtain a copy of the Permits and Licenses obtained by Caltrans from the US Coast Guard and the San Francisco Bay Conservation and Development Commission (BCDC) as referenced in the Specs 5-1.32. Would be able to e-mail or fax me a copy of these permits.

Copies of these permits can be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916) 654-4490, or may be **seen** at Toll Bridge Program Duty Senior's Desk, 111 Grand Avenue, Oakland, California 94612-3717. As a courtesy A copy of BCDC Permit and USCG Permit may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet, or by presenting receipts of $3.90 and $0.90 from District 4, Cashier's Office respectively to the Duty Senior for a copy of each complete document. Please call the Toll Bridge Program Duty Senior, Telephone No. (510) 286-5549, to reserve copies at least 24 hours in advance.

2. Please reserve 4 spaces for the September 9, 1999 site tour of the San Mateo Bridge Widening.

Done.

3. Please reserve a place for one representative from xxxxxxxx xxxxxx on the September 9 site visit. Will the itinerary be the same as the one posted for the September 2 site visit?

Done. The itinerary for all site visits will be the same.

4. Please be informed that undersigned like to make reservations for the site visit on 09-09-1999.

Done.

5. We would like to make a reservation to attend the site visit on September 9, 1999.

Done.

6. As discussed with you yesterday we would like to change our requested site visit date for the San Mateo Bridge Widening to Wednesday (9/1/99). Please confirm.

The dates available for site visits have been posted.

7. Where can I get a copy of the U.S. Coast Guard Checklist referenced in Section5-1.15?

Copies of the Checklist may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916) 654-4490, and are available for inspection at the Toll Bridge Program Duty Senior at District 04 Office, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. As a courtesy to the bidders for project a copy of the U.S. Coast Guard checklist for San Mateo-Hayward Bridge Trestle Widening Project may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. Presenting a receipt of $0.40 from District 4, Cashier's Office to the Toll Bridge Duty Senior may pick up the document. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

8. Where can I get a copy of the "Materials Information Handouts" as referenced in Section 5-1.24?

Caltrans provides all bidders a copy of the "Material Information Handouts." Non-bidder plan holders can request a copy of the "Material Information Handouts," by calling (916) 654-4490. If a person does not answer, please follow the directions to leave a message. A Caltrans representative will call you back. The same information is available for inspection and review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612. Please call (510) 286-5549 to make an appointment.

9. I would like to have a copy of the CSWPPP. Are they available?

Yes, they are available. Copies of the CSWPPP are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, and telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. As a courtesy to the bidders for the project, a copy of the CSWPPP for San Mateo-Hayward Bridge Trestle Widening Project may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. By presenting a receipt of $10.00 from District 4, Cashier's Office to the Toll Bridge Duty Senior, pick up a personnel copy of the document. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

10. Where can I get a copy of the "Foundation Recommendations and the "Information Handout" referenced in Section 10-1.33?

Foundation Recommendations are included within the contents of the "Material Information Handouts." Caltrans provides all bidders a copy of the "Material Information Handouts." Non-bidder plan holders can request a copy of the "Material Information Handouts," by calling (916) 654-4490. If a person does not answer, please follow the directions to leave a message. A Caltrans representative will call you back. The same information is available for inspection and review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612. Please call (510) 286-5549 to make an appointment.

11. I have been unable to reach a live voice by way of calling 916/654-4490 and am hoping you can help me.

Morrison Knudsen is interested in bidding on the San Mateo Bridge widening job, contract 04-045014. In the job's specifications, there are references to a permit, a checklist, and test results. Is there a listing that includes these items as well as other items we should obtain? If so, we would like to obtain a copy.

If not, we request a copy of the following items:

1. San Francisco Bay Conservation Development Commission (BCDC) - - permit issued by them covering work to be performed under this contract

2. U.S. Coast Guard, 12th District - - U.S. Coast Guard Checklist

3. "Sediment Sampling Analysis Report - San Mateo Hayward Trestle Widening"

Copies of BCDC permit can be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916) 654-4490, or may be **seen** at Toll Bridge Program Duty Senior's Desk, 111 Grand Avenue, Oakland, California 94612-3717.

Copies of U.S. Coast Guard Checklist are available for review at the Toll Bridge Program Duty Senior's Desk, 111 Grand Avenue, Oakland, California 94612-3717. As a courtesy, a copy of BCDC Permit and USCG checklist may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet, or by presenting receipts of $3.90 and $0.40 from District 4, Cashier's Office to the Duty Senior for a copy of each complete document. Please call the Toll Bridge Program Duty Senior, Telephone No. (510) 286-5549, to reserve copies at least 24 hours in advance.

Copies of the "Sediment Sampling Analysis Report - San Mateo Hayward Trestle Widening," are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. As a courtesy to the bidders for the project a copy of the CSWPPP for San Mateo-Hayward Bridge Trestle Widening Project may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. By presenting a receipt of $9.60 from District 4, Cashier's Office to the Toll Bridge Duty Senior, pick up a personnel copy of the document. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

12. My name is Brad Kaufman and I am with Kiewit Pacific Co. We are bidding the San Mateo Bridge Widening Project. I would like to arrange for a site visit to the San Mateo Bridge Widening Job. I would like to set it up for Friday 8/27/99 at 9:00am. We will have about 6 people.

The dates available for site visits have been posted. Reservations were confirmed for 9/2/1999.

13. We will be bidding on the above-referenced project (San Mateo-Hayward Bridge Widen, Contract No 04-045014) as a prime contractor in Joint Venture with another company, and both companies are prequalified to bid on the project. Please answer the following questions in this regard:

1.) Do we need to receive approval to bid as a Joint Venture?

2.) Does the Bid Bond need to be issued in the name of the Joint Venture?

Another question: page 89 of Notice to Contractor, Paragraph 10-1.14 - Transportation for Engineer - indicates insurance requirements as $50,000,000. Is this amount correct?

No, you don't need to receive approval to bid as a Joint Venture.

Yes, it should be. Because the name of the Joint Venture is the entity that Caltrans is dealing with.

Yes, it is.

14. Can we have copies of these reports sent by Fed Ex Acct.: xxxxxxxx-x to us?

1.) The complete report entitled "Sediment Sampling and Analysis Report - San Mateo-Hayward Trestle Widening Report."

2.) The Conceptual Storm Water Pollution Prevention Plan, hereafter referred to as the "CSWPPP."

Also, are there any x-sections available?

Copies of the "Sediment Sampling Analysis Report - San Mateo Hayward Trestle Widening," are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. Copies of the report may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. By presenting a receipt of $9.60 from District 4, Cashier's Office to the Toll Bridge Duty Senior, pick up a copy of the document. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

Copies of the CSWPPP are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, and telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. Copies of the report may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. By presenting a receipt of $10.00 from District 4, Cashier's Office to the Toll Bridge Duty Senior, pick up a copy of the document. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

Yes, cross sections are available. Copies of the cross-sections - San Mateo Hayward Trestle Widening," are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. Copies of the cross-sections may be obtained from the office of the Toll Bridge Duty Senior at 10 cents per sheet. By presenting a receipt from District 4, Cashier's Office to the Toll Bridge Duty Senior, pick up copies of the cross-sections. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

15. The following are requested.

1.) Please have as-built plans of the existing bridge available for view at the district office by September 8.

2.) Please make the cross sections available at the district office by September 8.

Copies of the as-built plans for the existing bridge are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, and telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

Copies of the cross sections are available for review at the Office of the Toll Bridge Program Duty Senior at District 04, 111 Grand Avenue, Oakland, California 94612, and telephone number (510) 286-5549, duty_senior_tollbridge_district04@dot.ca.gov. Please call the Office of the Toll Bridge Program Duty Senior, to reserve copies at least 24 hours in advance.

16. Ref. Special Provisions, Pages 1 and 9 - Notice to Contractors. At the bottom of Page 1 it is stated that "The bidder shall submit prices for all of the work of Items 1 through 79, plus prices for all of the work of the items included in the alternative selected by the bidder." The Copy of Engineers Estimate on Page 9, as well as the proposal form, shows Item 127 - Mobilization as part of Alternative 3. Shouldn't a mobilization item be included for each of the alternatives, or in the listing of items common to all alternatives?

Correct. Item 127 "Mobilization" is common to all the alternatives.

17. Four very large projects in the toll bridge system are out for bid at this time. Additionally, this bid will require extra effort and time to analyze three alternates. For these reasons we request a two-week extension of the bid date.

The bid date for the project will not be extended.

18. Can the contractor build a pile founded temporary work trestle to access the work?

No. BCDC permit 20-98, however, allows the contractor to " Construct and use a temporary staging platform at the west end of the project just north of the proposed trestle. Approximately 6,000 square feet of pile- supported fill and 350 square feet of solid fill will be permitted. Transport barges may be used to bring materials and equipment to the project site for all three design variations."

19. Can the Contractor use two different alternatives, one for each end of the bridge?

No. See Section 10-1.01, "Alternative Construction," of the special provisions. It states that "The Contractor shall construct ... in accordance with one of the alternative designs shown on the plans....

20. Plan sheet 148 of 214, Section A-A and Section B-B. Will the Contractor be allowed to eliminate the void for the 610 mm piles, i.e., cast the pile solid?

No.

21. Bid Schedule, Item 33, Bridge Removal (Portion): Is the existing concrete barrier to be removed included for payment in this item?

Yes, the barrier removal shown on the bridge plans is included in the contract item, bridge removal (portion).

22. Are the driving logs from the first trestle available for review and if so where?

There are no pile driving records available.

23. Is the epoxy coated reinforcement in the precast members paid as part of the precast concrete member or bar reinforcing steel item?

Reinforcing steel is included in the price paid for furnishing the precast concrete member. Refer to Section 51-1.23 "Payment" of the Standard Specifications.

24. Please have pile driving records for the existing bridge available for view at the district office by September 8.

There are no pile driving records available.

25. There appears to be a terminology discrepancy, is the term "mean lower low water" and the term "mean low water" one in the same? If not, please explain.

The terms are used interchangeably and mean the same.

26. There is load testing for this contract, will specified tips change? What type of testing will be done on the piles?

Load testing consists of static load testing, dynamic monitoring and bearing acceptance criteria. The primary purpose is to validate the design criteria. Specified tip elevations may change.

27. On sheet 212 of 347, how can the No. 19 bars be continuous as shown from the details on the plans? The precast bent caps on each side of the pile show the coupler as embedded into the cap with the bar running through the cap.

Section C-C details a #19 x 460 bar to be coupled to the hooked end.

28. Please refer to the welding specification section 49-5.01 item 5. The question is that when I refer to AWS D1.1 I cannot determine how much if any of a shop installed weld needs the NDT inspection. Would you please tell myself as well as other bidders and pipe suppliers because it has a dramatic affect on the pipe price.

Please refer to drawing sheet 259 of 347. Note 2 states that the prestressing panels shall be placed perpendicular to the girders. If that is the case, are the 1893 panels 27 meter wide and 2 meters in length and 81mm deep? If that is the case, how does a person pick the panel?

Are the driving logs from the first trestle available for review and if so where?

Has anyone sounded the ground (mudline) along the centerline of the new trestle, if so how do I get a copy of the results.

Additional provisions are described under the subsection "Steel Pipe Piling".

Attention is directed to Section 10-1.38, "Precast Prestressed Concrete Panel," of the special provisions regarding alternative panel widths.

There are no pile driving records available.

Caltrans is not aware of any sounding of the ground.

29. On page 238 of the plans, Section B-B shows a precast U bent cap with #19 ties at 150mm on center across the top of the "U". On page 239, Section B-B shows #32 bars placed below the ties. The only way to get these bars installed is to have the precaster place them before casting. Did the designer have some other method in mind? Are these #32 bars paid for as part of the precast beam instead of as Bar Reinforcement?

The method of installing the bars is determined by the Contractor.
The #32 are measured and paid for as bar reinforcing steel (bridge).

30. Special Provisions, page 123, Wave Equation. We are not clear as to the use of "bearing acceptance criteria curves"? It is our understanding that the pile tests would either confirm, or cause you to revise, the specified tip elevations shown on Drawing Sheet No. 3 of 214, titled Pile Data. We would then order piles to the appropriate length found at these specified tip elevations and drive them to these same elevations. We are unclear as to whether the use of "bearing acceptance criteria curves" would change our understanding described above. Please clarify.

Penetration and bearing analysis are in conjunction with load testing and dynamic monitoring of the test piles.

Please note: Response to inquiry #18 was modified September 28, 1999