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September 20, 2007

04-CC,Sol-680, 780-38.0/41.0, L0.0/R1.6 1.1/2.3
04-0060A4
ACIM-680-1(066)E
ACIM-780-2(351)E
Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in CONTRA COSTA AND SOLANO COUNTIES IN MARTINEZ AND BENICIA ON ROUTE 680 FROM 1.0 KM SOUTH OF MOCOCO OVERHEAD TO BAYSHORE ROAD AND ON ROUTE 780 FROM ROUTE 680 TO EAST FIFTH STREET.

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 31, 2007, instead of the original date of October 3, 2007.

This addendum is being issued to set a new bid opening date as shown herein and revise the Project Plans, the Notice to Contractors and Special Provisions, and the Proposal and Contract.

Project Plan Sheets 200, 249A, 317, 469, 470, 471, 473, 474, 479, 487, 488, 490, 499, 512 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 83A is added. A half-sized copy of the added sheet is attached for addition to the project plans.

In the "NOTICE TO CONTRACTORS," the fifth paragraph is revised as follows:

"A mandatory pre-bid site tour and small business outreach meeting is scheduled to start at 9 o'clock a.m. on October 16, 2007. The site tour begins at 9 o'clock a.m. at Caltrans Construction Office, located at 4585 Pacheco Boulevard, Martinez, CA 94553. Immediately after the site tour is completed, the meeting will convene at 1 PM at Caltrans Construction Office, located at 4585 Pacheco Boulevard, Martinez, CA 94553. A sign up sheet will be used to identify all prospective bidders attending the mandatory pre-bid site tour and small business outreach meeting. The Department will not accept bids from bidders who did not attend the mandatory pre-bid site tour and participate in the small business outreach meeting. Contractors may submit written bidder's inquiries to the State Representative during the tour and outreach meeting. State supplied forms will be provided for this purpose."

In the Special Provisions, Section 3, "AWARD AND EXECUTION OF CONTRACT," the last sentence of the third paragraph is revised as follows:

"Bids in which the number of working days bid for the completion of the work exceed 510 will be considered non-responsive and will be rejected."

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In the Special Provisions, Section 5-1.16 , "PROJECT INFORMATION," in the third paragraph, item I. is revised as follows:

"I. Temporary Storm Water Run-on Bypass and Excavation Dewatering Information Package."

In the Special Provisions, Sections 5-1.25, "CONTAMINATED AND HAZARDOUS MATERIAL, GENERAL," is revised as attached.

In the Special Provisions, Section 10-1.02 , "ORDER OF WORK," the following paragraph is added after the sixth paragraph:

"Attention is directed to "Section 10-1.19, COOPERATION" of these special provisions regarding the existing State Construction Office trailers in the Vista Point Parking lot area. All the work in the immediate vicinity of the State Construction Office Trailers as called out on the Stage Construction and Traffic Handling Plan, Stage 1, of the Contract Plan Sheets shall be performed in the last order of work. It is anticipated that the State trailers will be removed from the Vista Point Parking lot 60 days prior to the end of the contract."

In the Special Provisions, Section 10-1.02, "ORDER OF WORK," the twenty-first paragraph is revised as follows:

"Attention is directed to "Progress Schedule (Critical Path Method)" of these special provisions regarding the submittal of a general time-scaled logic diagram within 20 days after approval of the contract. The diagram shall be submitted prior to performing any work that may be affected by any proposed deviations to the construction staging of the project."

In the Special Provisions, Section 10-1.04, "HEALTH AND SAFETY PLAN," is revised as attached.

In the Special Provisions, Section 10-1.065, "TEMPORARY STORM WATER RUN-ON BYPASS AND EXCAVATION DEWATERING," is added as attached.

In the Special Provisions, Section 10-1.125, "TEMPORARY FENCE AND GATE," is added as attached.

In the Special Provisions, Section 10-1.175, "TEMPORARY RAILROAD CROSSING," is added as attached.

In the Special Provisions, Section 10-1.19, "COOPERATION," the following paragraphs are added after the last paragraph:

"The Contractor shall provide and maintain an access from the ES Line to the State Construction Office Trailers at Vista Point at all times for use by the state employees and their vehicles.

It is anticipated that inspection work by the State's Maintenance and Investigation group may be in progress adjacent to or within the limits of this project during progress of the work on this contract."

In the Special Provisions, Section 10-1.20, "PROGRESS SCHEDULE (CRITICAL PATH METHOD)," is revised as attached.

In the Special Provisions, Section 10-1.28, "MAINTAINING TRAFFIC," lane closure Chart No. 8R - Ramp Lane Requirements is added as attached.

In the Special Provisions, Section 10-1.31, "BARRICADE," is deleted.

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In the Special Provisions, Section 10-1.38, "EXISTING HIGHWAY FACILITIES," subsection, "REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING," is revised as attached.

In the Special Provisions, Section 10-1.39, "ASBESTOS-CONTAINING MATERIAL (BRIDGE REMOVAL)," is revised as attached.

In the Special Provisions, Section 10-1.41, "EARTHWORK," subsection, "CONTAMINATED AND HAZARDOUS MATERIAL EXCAVATION," is revised as attached.

In the Special Provisions, Section 10-1.67, "RAISE BRIDGE," is revised as attached.

In the Special Provisions, Section 12-1.07, "PROGRESS SCHEDULE," is revised as follows:

"A progress schedule shall be submitted for the building work in accordance with the requirements in "PROGRESS SCHEDULE (CRITICAL PATH METHOD)" of these special provisions."

In the Proposal and Contract, the Engineer's Estimate Items 23, 26, 98, 101, 102, 104, 115, 164, 220 and 224 are revised, Items 231, 232, 233 and 224 are added and Items 22 and 230 are deleted as attached.

To Proposal and Contract book holders:

Replace pages 4, 7, 8, 11, 13 and 14 of the Engineer's Estimate in the Proposal with the attached pages 4, 7, 8, 11, 13, 14 and 14A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

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 GSO overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

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

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Division of Engineering Services - Office Engineer

Attachments

5-1.25 CONTAMINATED MATERIAL, GENERAL

Attention is directed to "Contaminated Material Excavation," of "Earthwork" of these special provisions regarding the removal and disposal of excavated contaminated material described in this section. Attention is directed to "Health and Safety Plan" of these special provisions regarding the hazards posed by the contaminated material.

Contaminants have been detected during testing within the project limits. Testing consisted of collecting and analyzing in situ samples within the project limits. The complete reports titled:

- A. "Supplemental Site Investigation Report, Benicia-Martinez Bridge ,Marina Vista/Waterfront Road Interchange, Martinez, California, Geocon, June 2007."
- B. "Site Investigation Report, Benicia-Martinez Bridge, Mococo Overhead, and Marina Vista/Waterfront Road Interchange, Martinez, California, Geocon, April 2002."
- C. "Site Investigation Report, Interstate 680/780 Interchange Project, Solano County, California, Geocon, March 2001."

are available for inspection at the office of the Duty Senior, 111 Grand Avenue, Oakland, CA 94612, email; duty_senior_district04@dot.ca.gov, telephone number; (510) 286-5209. These test results have been used for disposal characterization of material within the excavation limits and shall not be construed as identifying all locations within the project limits that contain contaminants.

Wherever the following terms are used in the contract documents, the meaning and intent shall be interpreted as provided below:

- A. Class II material – Material that contains contaminants, typically petroleum hydrocarbons, at concentrations that require handling of the material as a designated waste as defined in Section 13173 of the California Water Code but does not contain contaminants at concentrations equal to or greater than the hazardous waste threshold limit concentrations listed in Section 66261.24 of Title 22 of the California Code of Regulations.

Characterization and disposal of additional material resulting from excavations performed outside of the pay limits shown on the plans, specified in the Standard Specifications, or specified or directed by the Engineer, for the Contractor's convenience, shall be at the Contractor's expense. The resultant material shall be presumed to be Class II material if the test results for the location indicate that the material being excavated is Class II material. The Contractor shall dispose of the resultant material in conformance with the provisions in "Earthwork" of these special provisions. When the material must be removed from highway right of way, the Contractor shall furnish replacement material suitable for the purpose intended in conformance with the provisions in Section 19, "Earthwork," of the Standard Specifications.

APPLICABLE RULES AND REGULATIONS

Excavation, transport and disposal of contaminated and hazardous material shall be in conformance with the rules and regulations of the following agencies:

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

PERMITS AND LICENSES

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work in conformance with the provisions in Section 7-1.04, "Permits and Licenses," of the Standard Specifications.

10-1.04 HEALTH AND SAFETY PLAN

Attention is directed to "Contaminated Material, General," "Contaminated Material Excavation," and "Asbestos-Containing Material (Bridge Removal)" of these special provisions.

The Contractor shall prepare a detailed Health and Safety Plan for all site personnel, including State personnel, that identifies potential health and safety hazards associated with existing hazardous substances found within the project limits such as total petroleum hydrocarbons, benzene, hydrogen sulfide gas, methane gas, asbestos, and lead and specifies work practices that will be used to protect workers from those hazards in conformance with CAL-OSHA regulations. The Contractor's attention is directed to Title 8, California Code of Regulations. At a minimum, the Health and Safety Plan shall identify key site safety personnel, describe risks associated with the work, describe training requirements, describe appropriate personal protective equipment, describe any site-specific medical surveillance requirements, describe any periodic air monitoring requirements, define appropriate site work zones, and describe any decontamination requirements. The Health and Safety Plan shall be submitted at least 15 working days prior to beginning work that may expose personnel to hazardous substances for review and acceptance by the Engineer. Prior to submittal, the Contractor shall have the Health and Safety Plan approved by an industrial hygienist certified by the American Board of Industrial Hygiene.

SAFETY TRAINING

Prior to performing work that may expose personnel to hazardous substances, all personnel, including State personnel, shall complete a safety training program that communicates the potential health and safety hazards associated with work on the site and instructs the personnel in procedures for doing the work safely. The level of training provided shall be consistent with the personnel's job function and conform to CAL-OSHA regulations. The safety training shall be given after acceptance of the Health and Safety Plan by the Engineer. The training, including subsequent training required until completion of the project, shall be provided by the Contractor. The Contractor shall provide a certification of completion of the Safety Training Program to all personnel. Personal protective equipment required by State personnel to inspect the work shall be provided by the Contractor. The number of State personnel requiring the above mentioned safety training program and personal protective equipment will be 10.

PAYMENT

The contract lump sum price paid for health and safety plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing and implementing the health and safety plan, including safety training, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.065 TEMPORARY STORM WATER RUN-ON BYPASS AND EXCAVATION DEWATERING

Temporary storm water run-on bypass and excavation dewatering work shall conform to the requirements in Section 7-1.01 G, "Water Pollution Control," of the Standard Specifications, the requirements for water pollution control elsewhere in these special provisions, and these special provisions.

Attention is directed to Section 7-1.01G, "Water Pollution," of the Standard Specifications and "Water Pollution Control" of these special provisions.

Attention is directed to "Withholds," within "Relations With California Regional Water Quality Control Board," for withholding monies in the full amount of penalties and mitigation costs proposed, assessed, or levied as a result of the Contractor's violation of the permits.

Conformance with the provisions of this section "Temporary Storm water Run-on Bypass and Excavation Dewatering," shall not relieve the Contractor from the Contractor's responsibilities, as provided in Section 7, "Legal Relations and Responsibilities," of the Standard Specifications.

A Temporary Storm Water Run-on Bypass and Excavation Dewatering Information Package (Information Package) has been prepared for this contract and is available as described in "Project Information" of these special provisions. This Information Package includes the following information from the dewatering operations and bypass plan implemented as part of work done on previous contracts: water quality monitoring results; a copy the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) general waste discharge requirements for Order No. R2-2006-0075, NPDES General Permit No. CAG9120023; potential discharge locations for treated groundwater; Shell Refinery discharge locations for anticipated run-on to work areas; Publicly Owned Treatment Works (POTW) permit requirements and disposal location. Copies of the Information Package are available for inspection at the office of the District Construction Duty Senior at 111 Grand Avenue Oakland, CA 94612, Telephone (510) 286-5209 or email duty_senior-district_04@dot.ca.gov.

TEMPORARY STORM WATER RUN-ON BYPASS

The Contractor shall furnish all tools, equipment, materials, and supplies, and shall perform all labor as required for bypassing of storm water in order to prevent run-on and tidal flows from entering work areas including, but not limited to, structure excavations for footings, walls, storm drain systems, sanitary sewer systems, utilities and appurtenances to complete the work of this Contract. Storm water run-on being bypassed shall not be allowed to mix with groundwater.

Attention is directed to "Site Conditions," of these special provisions and the Information Package, for estimating the quantity of storm water run-on discharges to the work areas.

Storm Water Run-on Bypass Plan (SRBP)

The Contractor shall submit to the Engineer, as provided in "Working Drawings," of these special provisions, a Storm Water Run-on Bypass Plan (SRBP) within the Dewatering Plan, described elsewhere in this section. The Contractor shall submit a SRBP for bypassing storm water and preventing tidal flows from entering the work areas, to complete the work indicated in the contract plans and these special provisions and prevent delays.

The Contractor shall submit to the Engineer, as provided in "Working Drawings," of these special provisions, the SRBP within the Dewatering Plan, that includes the following:

- A. Identification and description of all major sources of storm water run-on discharges and tidal flows that are expected to enter work areas,
- B. Water pollution control drawings that show temporary bypass measures for bypassing storm water run-on from above, and around the work areas at the project site, and preventing tidal flows from entering work areas. The drawings shall show how natural run-on shall be diverted and prevented from entering into work areas.
- C. Description of the BMPs with information on the sizing and installation of the conveyance system including pipes, pumps, and their inspection and maintenance procedures to ensure that no storm water runoff discharges enter the work areas

Materials

The Contractor shall select and deploy temporary bypass measures or best management practices (BMPs). The BMPs shall consist of a system of structures and measures that intercept tidal flows and storm water run-on discharges upstream of work areas, transport it around the work area, and discharge it downstream with minimal water quality degradation from either construction activities or the construction of the BMPs.

The Contractor's selection of temporary BMPs shall conform to the Department's "Construction Site Best Management Practices (BMPs) Manual," including addenda to the Manual issued up to and including the date of advertisement of this contract. Copies of this Manual may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445 3520, and may also be obtained from the Department's Internet website at: http://www.dot.ca.gov/hq/construc/stormwater/CSBMPM_303_Final.pdf.

Temporary BMPs including but not limited to any or all of following components shall be employed in conformance with Clear Water Diversion (NS-5) described within this Manual:

1. Sheet Pile enclosures
2. Water-filled geotextile (Aqua Dam)
3. Gravel berm with impermeable membrane
4. Cofferdams
5. K-rail
6. Pumped diversion

Any substance used to assemble or maintain diversion structures, or to minimize seepage underneath diversion structures, such as grout, shall be non-toxic, non-hazardous.

The size and type of temporary culverts or pipes to be installed shall be at the option of the Contractor; however, the culverts shall be capable of sustaining the estimated quantity of run-on discharges. Pipe joints for temporary culverts or pipes shall be watertight in conformance with the provisions in Section 61-1.02, "Performance Requirements for Culvert and Drainage Pipe Joints," of the Standard Specifications. The Contractor shall be responsible for incorporating any required fittings or appurtenances to ensure that the temporary bypass measures can be placed without inducing stresses that could damage the pipes used to convey the bypass flow.

The material, size and type of supports for temporary culverts shall be at the option of the Contractor; however, supports shall be constructed in a manner that will provide adequate supports for the culvert.

The Contractor shall be responsible for preventing, at Contractor's expense, any leakage in the temporary storm water run-on bypass measures that may interfere with the Contractor's work. Any portion of the temporary storm water run-on bypass measures that is damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense. If during the progress of work for a particular section it becomes necessary to reposition or relocate portions of the temporary drainage bypass measure, the work shall be done at the Contractor's expense.

When no longer required for the work as determined by the Engineer, temporary run-on bypass measures shall be removed. Removed facilities shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Inspection

The Contractor shall conduct a daily inspection of storm water run-on bypass equipment, when in use, and ensure that all components are functional and routinely maintained to prevent leakage and comingling with groundwater before discharge to a receiving water body. If any component of the equipment is damaged so that the performance of the equipment is diminished below allowable operational levels, the bypass operation shall be discontinued and the component shall be repaired or replaced with substitute equipment. Bypassed storm water run-on that mixes with groundwater shall be considered as groundwater as described within "Temporary Excavation Dewatering," in this section.

TEMPORARY EXCAVATION DEWATERING

Dewatering operations shall consist of collection, conveyance, treatment, and disposal of groundwater encountered in roadway and structure excavations, excavations for footings, walls, storm drain systems, sanitary sewer systems, utilities and appurtenances. Storm water runoff, run-on from drainage courses, stream flows or accumulated precipitation shall not be allowed to mix with groundwater. Storm water run-on or accumulated precipitation mixed with groundwater shall be considered as groundwater.

The discharge of floating oil or other floating materials is prohibited. Suspended solids shall be removed to the extent that deleterious bottom deposits, turbidity, and discoloration are not caused by the discharge.

Excavation dewatering discharges that are reused on-site, or discharged to the storm drain system shall be performed in conformance with the general waste discharge requirements for Order No. R2-2006-0075, NPDES General Permit No. CAG912002, issued by the SFRWQCB for "Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Fuel Leaks and Other Related Wastes at Service Stations and Similar Sites" and these special provisions. This permit is hereafter referred to as the "Order No. R2-2006-0075" in this section.

Copies of the Order No. R2-2006-0075 are included in the Information Package available for inspection at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, email; duty_senior_district04@dot.ca.gov, telephone (510) 286-5209 or on the Internet at: http://www.swrcb.ca.gov/rwqcb2/npdes_gen_permit.htm

The Contractor shall be fully informed of the provisions of the Order No. R2-2006-0075 and conduct the work accordingly. Compliance monitoring will be performed by the Contractor in conformance with Order No. R2-2006-0075 described in this section.

If the Contractor elects to discharge to the storm drain system by obtaining coverage under the Order No. R2-2006-0075, the Contractor shall prepare and submit to the Engineer along with the Dewatering Plan described in this section, the following:

- A. Notice of Intent (NOI) and
- B. A report certifying the adequacy of each component of the planned Groundwater Treatment System and an Operation and Maintenance Manual in conformance with Order No. R2-2006-0075 and these special provisions. The Department will submit the Notice of Intent (NOI) to initiate the discharge. The Contractor shall pay all fees assessed by the SFRWQCB in connection with the discharge.

The Contractor may choose to discharge the treated groundwater to the Publicly Owned treatment Works (POTW), or to an appropriately licensed liquid disposal facility after obtaining the necessary permits or approvals, and shall be in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. The Information Package includes information on the POTW.

All permits or approvals that regulate groundwater discharges associated with construction activities are hereafter referred to as the "Permits" in this special provision. The Contractor shall be responsible for obtaining all the permits needed, and pay for all associated fees for the discharges.

The Contractor shall provide treatment of groundwater from dewatering operations, as described in "Groundwater Treatment System" in this section, to comply with the Permits, and perform additional monitoring if required for disposal of groundwater in accordance with Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way," of the Standard Specifications.

It is estimated that the groundwater seepage flow rate is approximately 106 liters/day/square meter of the excavation areas including, but not limited to, roadway and structure excavations, excavations for footings, walls, storm drain systems, sanitary sewer systems, utilities and appurtenances. The excavation area measured below the static groundwater table for estimation of seepage flow rate shall include excavations side walls/slopes and bottom of the excavation. Continuous pumping from well points outside the excavations shall not be allowed.

The Contractor may elect to apply a seal course to control water from excavations. Seal courses shall conform with the provisions of Section 19-3.04, "Water Control and Foundation Treatment," of the Standard Specifications. A meter that has been approved by the Engineer shall be used to measure all dewatering discharges, and shall be in place and operable prior to any discharges. Discharges shall be recorded daily when discharges occur and a copy of all recordings provided to the Engineer at the end of each month combined with any water sampling data.

The Contractor shall conduct dewatering activities in accordance with the "Field Guide for Construction Site Dewatering" available at:

[http://www.dot.ca.gov/hq/construc/storm water/DewateringGuide.pdf](http://www.dot.ca.gov/hq/construc/storm%20water/DewateringGuide.pdf)

The Contractor shall be responsible for designing and constructing all temporary project and local dewatering systems which shall conform to section 19 3.04, "Water Control and Foundation Treatment," of the Standard Specification, these special provisions, and as directed by the Engineer.

Groundwater quality within the limits of the project is summarized in the Information Package described in this section.

Materials

Materials shall conform to the provisions in Section 6, "Control of Materials," Section 7-1.16, "Contractor's Responsibility for the Work and Materials," Section 20-5.03E, "Pipe," and Section 74-2, "Drainage Pump Equipment" of the Standard Specifications and these special provisions.

Holding tanks for pretreatment storage shall be transportable and totally enclosed, with a minimum holding capacity sufficient to prevent delay of other work and capable of connecting multiple tanks in series. Holding tanks shall have an inlet and outlet capable of receiving and discharging minimum flows, at a rate sufficient to reach the treatment goals. Holding tanks shall be able to accommodate temporary installation of submersible pumps. All tanks shall remain within the project limits until dewatering operations are no longer necessary as determined by the Engineer.

Pumps shall be capable of being submerged in water and discharging water and other materials including, but not limited to small rocks, gravel, sand and sediments. The submersible pumps shall be capable, at all times, of discharging at a flow rate that will match the flow rate through the treatment vessels. An additional submersible pump shall be provided by the Contractor that is capable of discharging treated groundwater from a temporary holding container to the dedicated discharge location.

Groundwater Treatment System (GTS)

Groundwater includes groundwater, accumulated storm water and discharges that do not originate from a precipitation event. The Contractor shall design and implement an appropriate GTS for the site conditions and anticipated groundwater flow rates to achieve and maintain compliance with the specified water quality limitations in the permits.

The Contractor shall implement the GTS to achieve compliance with Order No. R2-2006-0075 for discharges to the storm drain system, or provide treatment to achieve compliance with specific water quality limitations set forth by a POTW or an off-site licensed disposal facility.

The GTS design considerations shall include, but not be limited to, a combination of weir tanks, settling tanks, sand media filters, or cartridge filters for sediment removal; activated clay filtration vessels, enhanced oil/water separators, or natural or synthetic media filters for oil, fat, grease, and partially soluble, heavy molecular weight hydrocarbon removal; and granular activated carbon filtration vessels for very soluble, light molecular weight, volatile hydrocarbon removal. The Contractor shall ensure that the treatment system components are steam cleaned to remove any residual contaminants.

The treatment vessels shall be capable of being readily removed and replaced or interchanged when required. The treatment system shall have appropriate fittings for pipe connections designed to accommodate the required flow rate.

Disposal of the treated groundwater to the storm drain system or receiving water body shall not be allowed until the Contractor has maximized its reuse for Dust Control. The Contractor may propose other reuse options to the Engineer, and shall implement them after the Engineer's approval is obtained. Discharges from GTS to a storm drain system or receiving water body shall not cause erosion at the point of discharge. Protection shall be provided at the outlet of treated groundwater into the receiving water body to ensure that bottom sediments, aquatic vegetation, or surface soils do not become dislodged or disturbed.

Sediments removed during maintenance of the GTS shall be characterized by laboratory analysis before disposal. Contaminated sediments shall be removed from the site to an appropriately licensed waste management facility in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Sampling ports shall be spigots attached to the piping system and capable of obtaining a representative sample of water at locations within the groundwater treatment system where constituent concentrations are needed to ensure compliance with the permits and to inspect the efficiency of the system. The GTS shall be capable of sustaining temporary fluctuations in water pressure due to monitoring activities.

The Contractor shall provide and install all piping required to circulate the groundwater through the treatment system and all piping required to convey the treated groundwater from the temporary holding container to the point of release at a transfer or discharge location approved in the permits.

Monitoring

Discharges from the GTS to the storm drain system or receiving water body shall be monitored as per the requirements of Order No. R2-2006-0075, the Self-Monitoring Program included with Order No. R2-2006-0075, and these special provisions. The Contractor shall prepare a Start-up Report, and letter of transmittal as required in Order No. R2-2006-0075, and submit to the Engineer no later than 5 days after the end of the start-up phase. The Self-Monitoring Reports, and letter of transmittal shall be prepared as required in Order No. R2-2006-0075, and shall be submitted to the Engineer no later than 30 days after the last day of the month.

Spills and violations shall be reported to the Engineer within 24 hours of discovery and will be confirmed in writing to the Engineer within 4 working days. All standard observations specified in the Self-Monitoring Program included with Order No. R2-2006-0075 shall be recorded in a standard format. After 6 months of monitoring, the Engineer may request that SFRWQCB review the results in order to modify the Self-Monitoring Program for Order No. R2-2006-0075 to address only constituents of concern. In the event that a modification is granted, adjustments in compensation for sampling, analysis and reporting will be made in conformance with Section 4-1.03, "Changes," of the Standard Specifications.

When observations and measurements indicate that the discharge water quality parameters are above the allowed limitations in Order No. R2-2006-0075, the Contractor shall inform the Engineer, the discharge activity shall immediately cease, and corrective actions shall be undertaken to modify, repair, or replace the equipment used for the discharge. The resumption of discharge activities will be allowed upon approval of the corrective measures by the Engineer.

For discharges of treated groundwater to a POTW or a licensed disposal facility, the Contractor shall be responsible for implementing all monitoring requirements required by these facilities, and shall submit all monitoring reports to the Engineer prior to disposal outside of right of way in accordance with section 7-1.13 of the Standard Specifications.

The Contractor shall perform additional monitoring of sediments removed from the GTS, if required by the off-site licensed disposal facility for disposal of this sediment in accordance with Section 7-1.13, of the Standard Specifications.

Inspection

The Contractor shall conduct a daily inspection of the dewatering, treatment, and discharge equipment, when in use, and ensure that all components are functional and routinely maintained to prevent leakage before removal of suspended solids and other contaminants. If any component of the equipment is damaged so that the performance of the equipment is diminished below allowable operational levels, the dewatering operation shall be discontinued and the component shall be repaired or replaced with substitute equipment.

DEWATERING PLAN

As part of the temporary storm water run-on bypass and excavation dewatering work, the Contractor shall prepare a Dewatering Plan. Discharges from dewatering operations and storm water run-on bypassing shall not commence until the Dewatering Plan has been approved by the Engineer.

The Contractor shall be responsible for complying with all applicable permits and applicable Federal, State and local laws, regulations, and requirements. Approval of the Dewatering Plan shall not constitute a finding that the Dewatering Plan complies with applicable requirements of the Permits, the Manuals and applicable Federal, State and local laws, regulations, and requirements. The Dewatering Plan shall apply to the areas within and those outside of the highway right of way that are directly related to construction operations including, but not limited to, roadway and structure excavations, excavations for footings, walls, storm drain systems, sanitary sewer systems, utilities and appurtenances, including temporary storm water run-on bypass operations and reuse of treated groundwater.

Preparation, Review and Approval of Dewatering Plan

The Contractor shall prepare and submit a Dewatering Plan to address treatment and disposal of treated groundwater to the storm drain system reuse of treated groundwater on-site, or disposal to the POTW or at an off-site licensed liquid disposal facility.

The Dewatering Plan shall be prepared in conformance with any requirements of the Department's "Field Guide for Construction Site Dewatering," including addenda to the Manual issued up to and including the date of advertisement of the project. Copies of this Manual may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445 3520, and may also be obtained from the Department's Internet website at: <http://www.dot.ca.gov/hq/construc/stormwater/DewateringGuide.pdf>.

The Contractor shall assign a Professional Engineer certified in the State of California to: oversee the work of the Certified Technician; prepare the Dewatering Plan required in this section, including the required modifications or amendments; oversee the Groundwater Treatment System (GTS) operation and maintenance activities as described elsewhere in this section; be responsible for the implementation and adequate functioning of the components for the collection, conveyance, pretreatment, treatment and disposal from the GTS in compliance with the Permit requirements.

The Professional Engineer shall furnish evidence of at least 5 years experience in treatment systems of comparable size and complexity as the GTS, in the following areas including, but not limited to:

1. Selection of appropriate treatment technology for groundwater treatment
2. Design and building of treatment systems
3. Trouble Shooting
4. Operations and Maintenance
5. Compliance Monitoring and Reporting
6. Safety and Hazard Operability Reviews

Evidence including, but not limited to project references, dates, names, phone numbers and color photographs shall be submitted to the Engineer.

The Contractor shall furnish a Certified Technician with the qualifications described in this section. The Contractor shall submit to the Engineer a statement of qualifications, describing the training, previous work history and expertise of the individual selected to serve as Certified Technician. A trained technician certified through an approved Operators Training

Program shall operate the GTS. Valid technician certificate(s) shall be posted onsite. GTS training content shall include, but is not limited to: Stormwater regulatory framework and requirements; Stormwater treatment chemistry (pH, filtration, coagulation, flocculation); Stormwater treat ability including jar test procedure; Treatment system components and their operation; Operating the treatment system; Testing turbidity, pH, and chemical residual; Optimizing chemical dosing rates.

The Certified Technician shall provide written proof of operator certification training to the Engineer; Provide names and contact information for all individuals involved with the site design, installation process, maintenance, operation of, and monitoring of the GTS.

The Technician shall be responsible for performing monitoring and sampling work, compiling monitoring reports and submitting them to the Engineer. All information and recorded data collected or submitted to the Engineer shall be certified as true and accurate and signed by the Certified Technician. The Certified Technician shall implement the Dewatering Plan under the oversight of the Professional Engineer.

The Water Pollution Control Manager as described in "Water Pollution Control" of these special provisions shall be the primary contact for issues related to the Dewatering Plan or its implementation.

The Contractor shall submit to the Engineer, as provided in "Working Drawings," of these special provisions, a Dewatering Plan that includes the following:

- A. Dewatering Operation Description - written description of temporary storm water run-on bypass operations, temporary excavation dewatering operations that shall include, but is not limited to, start up date of discharge, an estimate of the discharge volume, flow rate, frequency, and maximum capacity of the GTS.
- B. Certification of GTS Design - report describing the adequacy of (1) the process and design of the treatment system to meet treatment objectives, (2) the startup and operation instruction manuals, (3) the treatment system maintenance and testing program; and (4) the influent and groundwater sampling locations. This certification shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California.
- C. Treatment System Operation and Maintenance Manual - manual of operation for the treatment system that describes staffing and training, quality control and assurance, inspection and maintenance, monitoring, records keeping, and preventative and contingency plans for controlling accidental discharges.
- D. Working Drawings - working drawings of storm water bypass operations, dewatering operations showing both a sectional and plan view that details the removal techniques for suspended solids and known or introduced groundwater contaminants. The drawings shall define the flow path and placement of pipes, hoses, pumps, treatment systems, holding tanks, and other equipment used to convey the discharge; the general position of the dewatering measures relative to the excavations undergoing dewatering; and the point of groundwater discharge.

Within 20 days after the approval of the contract, the Contractor shall submit 3 copies of the draft Dewatering Plan to the Engineer. The Engineer will have 45 days to review the draft Dewatering Plan. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the Dewatering Plan within 15 days of receipt of the Engineer's comments. The Engineer will have 10 days to review the revisions. Upon the Engineer's approval of the Dewatering Plan, 4 approved copies of the Dewatering Plan, incorporating the required changes, shall be submitted to the Engineer.

The Contractor shall prepare an amendment to the Dewatering Plan when there is a change in construction activities or operations which may affect the discharge of treated groundwater, storm water run-on bypass to surface waters, or when directed by the Engineer. Amendments shall identify additional measures or revised operations, including those areas or operations not identified in the initially approved Dewatering Plan. Amendments to the Dewatering Plan shall be prepared and submitted for review and approval within a time approved by the Engineer, but in no case longer than the time specified for the initial submittal and review of the Dewatering Plan.

The Contractor shall prepare an amendment to the Dewatering Plan when there is a change in construction activities or operations which may affect the discharge of pollutants to surface waters, ground waters, or when the Contractor's activities or operations result in an exceedance of the groundwater limitations set forth in the permits, or when directed by the Engineer.

Excavation operations that require dewatering will not be allowed until the Dewatering Plan has been approved by the Engineer. At the time of approval, the Contractor shall incorporate the dewatering plan into the approved SWPPP via the established amendment process as described within "Water Pollution Control" of these special provisions.

TEMPORARY STORM WATER RUN-ON BYPASS AND EXCAVATION DEWATERING COST BREAKDOWN

The Contractor shall include a temporary storm water run-on bypass and excavation dewatering Cost Break Down in the Dewatering Plan, which itemizes the contract lump sum for Temporary Storm water Run-on Bypass and Excavation Dewatering work. The Contractor shall use this Cost Break Down provided in this section as the basis for the cost breakdown submitted with the Dewatering Plan. The Contractor shall use this Cost Break Down to identify items, quantities and

values for Temporary Storm water Run-on Bypass and Excavation Dewatering work. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break down submitted with the Dewatering Plan. Partial payment for the item of Temporary Storm Water Run-on Bypass and Excavation Dewatering will not be made until the Cost Break Down is approved by the Engineer.

In the Cost Break Down submitted with the Dewatering Plan, the Contractor shall list only those items selected for the project, including quantities and values required to complete the work for those items.

The sum of the amounts for the items of work listed in the Cost Break Down shall be equal to the contract lump sum price bid for Temporary Storm water Run-on Bypass and Excavation Dewatering. Overhead and profit, except for time related overhead, shall be included in the individual items listed in the cost break down.

**Temporary Storm Water Run-on Bypass and Excavation Dewatering Cost Break Down
Contract No. 04-0060A4**

ITEM DESCRIPTION	Unit	Quantity	Value	Amount
Prepare Dewatering Plan	LS	Lump Sum	Lump Sum	
Prepare Storm water Run-On Bypass Plan (SRBP)	LS	Lump Sum	Lump Sum	
Temporary Storm water Run-On Bypass BMPs	LS	Lump Sum	Lump Sum	
Operation and Maintenance of Temporary Run-On BMPs	LS	Lump Sum	Lump Sum	
Groundwater Treatment System (GTS)	LS	Lump Sum	Lump Sum	
Operation and Maintenance of GTS	LS	Lump Sum	Lump Sum	
Implementation of Monitoring and Reporting Program	LS	Lump Sum	Lump Sum	
Disposal and Reuse of Treated Groundwater	LS	Lump Sum	Lump Sum	
Handling and Disposal of solids from the GTS	LS	Lump Sum	Lump Sum	
Total				

Adjustments in the items of work and quantities listed in the approved cost break down shall be made when required to address amendments to the Dewatering Plan, except when the adjusted items are paid for as extra work.

No adjustment in compensation will be made to the contract lump sum price paid for Temporary Storm water Run-on Bypass and Excavation Dewatering due to differences between the quantities shown in the approved cost break down and the quantities required to complete the work as shown on the approved Dewatering Plan. No adjustment in compensation will be made for ordered changes to correct Dewatering Plan work resulting from the Contractor's own operations or from the Contractor's negligence.

The approved cost break down will be used to determine partial payments during the progress of the work and as the basis for calculating the adjustment in compensation for the item of Temporary Storm water Run-on Bypass and Excavation Dewatering due to increases or decreases of quantities ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down item, the adjustment in compensation will be determined in the same manner specified for increases and decreases in the quantity of a contract item of work in conformance with the provisions in Section 4 1.03B, "Increased or Decreased Quantities," of the Standard Specifications. If an ordered change requires a new item which is not on the approved cost break down, the adjustment in compensation will be determined in the same manner specified for extra work in conformance with Section 4 1.03D, "Extra Work," of the Standard Specifications.

If requested by the Contractor and approved by the Engineer, changes to the items listed in the approved cost break-down, including addition of BMPs or measures, will be allowed. Changes shall be included in the approved amendment of the Dewatering Plan. If the requested changes result in a net cost increase to the lump sum price for Temporary Storm water Run-on Bypass and Excavation Dewatering, an adjustment in compensation will be made without change to the Temporary Storm water Run-on Bypass and Excavation Dewatering item. The net cost increase to the water pollution control item will be paid for as extra work as provided in Section 4 1.03D, "Extra Work," of the Standard Specifications.

PAYMENT

The contract lump sum price paid for Temporary Storm Water Run-on Bypass and Excavation Dewatering shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in bypassing storm water run-on and excavation dewatering, except for application of a seal course as elected by the Contractor to control and remove groundwater from structure excavations; complete in place, including preparing and amending the Dewatering Plan; conforming to the requirements of the approved Dewatering Plan including the preparation of the NOI and the report required to obtain coverage under the Order No. R2-2006-0075 for discharges to the storm drainage system, or preparation of other submittals required to obtain approval for discharge to an off-site disposal facility; payment of all fees including but not limited to permit fees in connection with the discharge, including all fees related to providing treatment, monitoring and disposal of treated groundwater and sediment offsite in accordance with Section 7-1.13 of the Standard Specifications; furnishing, installing, operating, providing power to operate all equipment, maintaining, and removing all components of the GTS and temporary bypass BMPs; collecting, conveying, treating, disposing and reusing treated groundwater, including all additional laboratory analysis, monitoring and reporting required for disposal of sediment and groundwater from the GTS, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.125 TEMPORARY FENCE AND GATE

Temporary fence and gate shall be furnished, constructed, maintained, and later removed as shown on the plans, as specified in these special provisions and as directed by the Engineer.

Except as otherwise specified in this section, temporary fence and gate shall be Type CL-1.8 and shall conform to the plan details and the specifications for permanent fence of similar character as provided in Section 80, "Fences," of the Standard Specifications.

Used materials may be installed provided the used materials are good, sound and are suitable for the purpose intended, as determined by the Engineer.

Materials may be commercial quality provided the dimensions and sizes of the materials are equal to, or greater than, the dimensions and sizes shown on the plans or specified herein.

Galvanizing and painting of steel items will not be required.

Temporary fence and gate that is damaged during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense.

When no longer required for the work, as determined by the Engineer, temporary fence and gate shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this section.

Holes caused by the removal of temporary fence and gate shall be backfilled in conformance with the provisions in the second paragraph of Section 15-1.02, "Preservation of Property," of the Standard Specifications.

The temporary fence and gate will be measured and paid for in the same manner specified for permanent fence of similar character as provided in Section 80, "Fences," of the Standard Specifications.

Full compensation for maintaining, removing, and disposing of temporary fence and gate shall be considered as included in the contract prices paid per meter of temporary fence and no additional compensation will be allowed therefor.

10-1.175 TEMPORARY RAILROAD CROSSING

Temporary railroad crossing shall be designed, constructed, and maintained at the location approved by the Union Pacific Railroad Company (Railroad) as shown on the plans, as specified in Section 13, "Railroad Relations and Insurance Requirements," in these special provisions, and as directed by the Engineer.

When no longer required for the work as determined by the Engineer, the temporary railroad crossing shall be removed and the site shall be restored to its original conditions.

The contract lump sum price paid for temporary railroad crossing shall include full compensation for furnishing all labor, tools, equipment, incidentals, and for doing all the work involved in designing, constructing, maintaining, removing temporary railroad crossing, and restoring the site to its original conditions, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

Full compensation for designing, installing and removing of drainage system, or other facilities made necessary by the use of the temporary railroad crossing shall be considered as included in the contract lump sum price paid for temporary railroad crossing and no separate payment will be made therefore.

10-1.20 PROGRESS SCHEDULE (CRITICAL PATH METHOD)

The Contractor shall submit to the Engineer practicable critical path method (CPM) progress schedules in conformance with these special provisions. Whenever the term "schedule" is used in this section it shall mean CPM progress schedule. All schedules shall reflect a reasonable plan to execute the contract scope of work. The Contractor shall be solely responsible for the content of the schedules and the execution of all contract requirements.

Attention is directed to "Payments" of Section 5 of these special provisions.

The provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications shall not apply.

DEFINITIONS

The following definitions shall apply to this section:

- A. Activity: Any task, or portion of a project, which takes time to complete.
- B. 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, dates are shown across the top, and activity durations are shown as date-placed horizontal bars.
- C. Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
- D. Contract Completion Date: The current 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.
- E. 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.
- F. Critical Path: The series of activities, which determines the earliest completion of the contract (Forecast Completion Date). This is the longest path of activities having the least amount of float.
- G. 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.
- H. Data date: The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."
- I. Delay: The time period during which some part of the construction project has been extended beyond what was originally planned due to unanticipated circumstances. A delay occurs when the respective activity or group of activities, requiring additional time, impacts the completion of the successor construction activity and also extend the scheduled contract completion date. Concurrent Delay: Two or more delays occurring simultaneously or overlapping. Each delay when analyzed separately impacts the contract completion date.
- J. 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.
- K. 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.
- L. Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
- M. 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.
- N. Narrative Report: A document submitted with each schedule that discusses topics related to project progress and scheduling.
- O. Near Critical Path: A path having 30 days or less of total float.
- P. Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
- Q. Scheduled Completion Date: The completion date of the last scheduled work activity identified on the critical path.
- R. State-owned Float Activity: The activity documenting time saved on the critical path by actions of the State. It is the last activity prior to the scheduled completion date.
- S. Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, and float.

- T. Time Impact Analysis: A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.
- U. 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.
- V. Time-Scaled Resource Hoistogram: A graph that displays a single resource's usage over the entire project.
- W. Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
- X. Update Schedule: The modification of the CPM progress schedule through a regular review to incorporate actual progress to date by activity and to reflect the current plan to complete the project.

PRECONSTRUCTION SCHEDULING CONFERENCE

The Engineer will schedule and conduct a Preconstruction Scheduling Conference with the Contractor's Project Manager and Construction Scheduler within 1 week after the award of the contract. 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 Contractor shall propose to the Engineer for approval a set of logical project codes, filters, and layouts, to group and organize the work activities. The Engineer may submit a scheduling shell project displaying an activity code dictionary consisting of fields populated with the Caltrans scheduling codes, filters, layouts, reports formats, and a resource dictionary to be incorporated into the schedule. Periodically, the Engineer may request the Contractor to utilize additional filters, layouts, or activity codes to further group or summarize work activities.

The Engineer and the Contractor shall review the requirements of all submittals required by the contract to discuss and incorporate their preparation, review and submittal dates.

GENERAL SCHEDULE ITEMS

The Engineer's review and acceptance of schedules shall not waive any contract requirements and shall not relieve the Contractor of any obligation there under or responsibility for submitting complete and accurate information. Schedules that are rejected shall be corrected by the Contractor and resubmitted to the Engineer within 5 days of notification by the Engineer, at which time a new review will begin.

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 shall correct such errors on the next schedule update and shall include an explanation in the schedule narrative. Any impact resulting from such error or omission shall be mitigated by the Contractor at his own expense.

The following items are applicable to all schedules:

- A. The schedule shall identify all project characteristics, salient features, or interfaces, including those with outside entities that could affect time of completion.
- B. Schedule activities shall identify project start date, scheduled completion date, and project milestones
- C. Activity descriptions shall not be revised when the scope of the activity is changed. Instead, the existing activity shall be deleted and a new activity shall be added.
- D. The schedule shall be constructed using the Precedence Diagramming Method (PDM) technique.
- E. Scheduled activities shall show the identification of Work performed by the Contractor, subcontractors and suppliers
- F. All activities shall be assigned a new and unique Activity Identification Number.
- G. After acceptance of the Baseline Schedule, the original duration field shall not be modified. Any changes in duration shall be indicated utilizing the remaining duration field.
- H. All construction activities shall have durations of not more than 20 days, unless otherwise accepted by the Engineer. All activities shall be of appropriate durations to progress the Work. The Engineer may request contractor to provide an additional detail of activities, including shop drawings or fabrication activities, in order to properly monitor the progress of Work.
- I. All activities, with the exception of the first and last activities, shall have a minimum of one predecessor and one successor.
- J. Negative lags shall not be used.
- K. Contractor shall use retained logic when establishing schedule calculation.

- L. Once the Baseline Schedule is accepted, there shall be no modifications to the Project Calendar.
- M. The Contractor shall provide to the Engineer two copies of all schedules on electronic medium, together with printed copies of the network diagrams or bar charts and tabular reports described under "Project Schedule Reports", and the Schedule Narrative Report.
- N. Use of additional logic ties to represent resource sequencing shall be kept to a minimum.
- O. Activities and milestones representing the interface with neighboring contractors, agencies, or other outside entities and as stated by these Special Provisions, shall be reflected in the schedule.
- P. Submittals, reviews, deferred submittal review periods, and outside agency submittal review periods shall be included in the schedule with sufficient duration assigned to each activity. The Contractor shall be responsible for all impacts resulting from re-submittals and the effects of partial or incomplete submittals.
- Q. All Construction Staging shall be identified on the schedule by the use of activity coding.
- R. Testing and settlement periods, utility notifications and relocations, major traffic stage switches, and any other activity affecting the Work shall be identified on the project schedule.
- S. The baseline schedule shall be resource loaded.

INTERIM BASELINE SCHEDULE

Within 2 weeks after approval of the contract or at the pre-construction conference, whichever is later, 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 of scheduling and be prepared on the same software as the Baseline Schedule. 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 required submittals, working drawings, and review periods, and shall provide for all permits, and other non-work activities necessary to begin the work. Beyond the first 120 days of the project, the Contractor shall depict the remainder of the project in a summary form, reflecting the duration of the contract, grouped by major project component. The summary schedule portion is for information purposes only and shall be used as a reference until the Baseline Schedule is accepted. The Interim Baseline Schedule submittal shall include the data files used to generate the schedule on electronic medium.

The Engineer shall be allowed 2 weeks to review the schedule and to provide comments, including the Contractor's application of the supplied activity codes. All comments shall 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 relieve the Contractor from the timely submittal of the Baseline Schedule. No contract payments shall be made to the Contractor until an Interim Baseline Schedule is submitted in accordance with the above requirements.

BASELINE SCHEDULE

Within 6 weeks of the Notice to Proceed, the Contractor shall submit to the Engineer a Baseline Project Schedule in accordance with the Contract Provisions. The Baseline Schedule shall have a data date of the day prior to the first working day of the contract. The Notice to Proceed Milestone shall be the date on which the Notice to Proceed is specified in the Contract. The schedule shall not include any actual start dates, actual finish dates, or constraint dates (except for Contract Milestone dates, NTP, and Project Completion), and activities scheduled to start or finish between the data date and the run date shall reflect dates that can be attained. The NTP activity may have a start-no-earlier-than constraint and the Project Completion Activity may have a finish-no-later-than constraint. The Baseline Schedule shall show interim milestone dates, contract milestone dates, stage construction requirements, internal time constraints, logical sequence of activities, and shall 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 work periods and holidays. Different calendars shall be used for work activities that occur on different work schedules. Activities for the preparation and the review of submittals; offsite fabrication, and material/equipment deliveries shall be assigned to the same calendar unless accepted by the Engineer. All non-activity periods for environmental work restrictions shall be identified with the appropriate calendars. The Baseline Schedule shall depict how the Contractor plans to complete the whole work involved, and shall show all activities that define the critical path. Multiple critical paths and near-critical paths shall be kept to a minimum, as determined by the Engineer.

The Contractor shall require each subcontractor to submit in writing a statement certifying that the subcontractor, major fabricators and suppliers have concurred with the Contractor's CPM baseline schedule including major update schedules, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities, labor and equipment loading.

State-owned float shall be considered a resource for the exclusive use of the State. The Engineer may accrue State-owned float by the early completion of review of any type of required submittal when it saves time on the critical path. The Contractor shall document State-owned float by updating the State-owned float activity on the next schedule update. State-owned float shall be the second-to-last activity in the schedule of which the successor is the Scheduled Completion Date. No other activity shall be scheduled to occur during the Stated Owned Float Activity. The Contractor shall include a log of the action on the State-owned float activity and include a discussion of the actions in the narrative report. The Engineer may use State-owned float to mitigate past or future State delays by offsetting potential time extensions.

If the Contractor submits an early completion Baseline schedule that shows contract completion in less than 85 percent of the working days specified in these special provisions, the Baseline 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. The Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and equipment to be utilized on the contract. The resource allocations shall be shown to a level of detail that facilitates report generation based on labor crafts and equipment classes for the Contractor and subcontractors. 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. The Engineer may review the Baseline schedule activity resource allocations using Means Productivity Standards or equivalent to determine if the schedule is practicable.

The Baseline schedule submitted to the Engineer shall comply with all limits imposed by the contract, with all specified intermediate milestones and contract completion dates, and with all constraints, restraints or sequences included in the contract. The degree of detail shall include the general requirements as stated above including, but not limited to:

- A. All purchases, submittals, submittal reviews, manufacture, fabrication, tests, delivery, and installation activities for all major materials and equipment, including submittal of requests for audits of manufacturers and fabricators in conformance with "Manufacturing and Fabrication Qualification Audit for Materials" of these special provisions;
- B. 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;
- C. Identification of each 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;
- D. Actual tests, submission of test reports, and approval of test results;
- E. All start-up, testing, training, and assistance required under the Contract;
- F. Punchlist and final clean-up;
- G. Identification of any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as double shifts, 6 or 7-day weeks, specified overtime, or work at times other than regular days or hours. Any unusual shift periods shall be specified in the Contract otherwise all activities shall be scheduled as a regular Working Day.
- H. 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;

In no event shall the baseline schedule exceed 750 construction activities, exclusive of submittals, review periods, and fabrication/delivery activities. The Engineer will be allowed 2 weeks to review and accept or reject the baseline schedule. Rejected schedule shall be resubmitted to the Engineer within 1 week, at which time a new 2 week review period by the Engineer will begin. The baseline schedule submittal is not complete until the scheduling equipment and software are provided.

EARLY AND LATE COMPLETION SCHEDULES

The Contractor may show early completion time on any schedule provided that the requirements of the contract are met. Early completion time shall be considered a resource for the exclusive use of the Contractor. The Contractor may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently or by completing activities earlier than planned. The Contractor may also submit for approval a cost reduction incentive proposal in conformance with the provisions in Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications that will reduce time of construction.

After approval of the Baseline Schedule, should Contractor show a scheduled completion date that is later than the contract completion, the Contractor shall provide a detailed explanation for the scheduled completion date in the schedule narrative. During any period in which the schedule shows negative float, the Engineer may require a recovery schedule depicting how the Contractor intends to bring the project back to the approved project completion date. This recovery schedule is in addition to the updated schedule.

The Engineer may adjust contract working days for ordered changes that affect the scheduled completion date, in conformance with the provisions in Section 4-1.03, "Changes," of the Standard Specifications. The Contractor shall prepare a time impact analysis to determine the effect of the change in conformance with the provisions in "Time Impact Analysis" specified herein, and shall include the impacts acceptable to the Engineer in the next update schedule.

SCHEDULE RESOURCE ALLOCATIONS / LOADING

The Baseline Schedule shall be supplemented with resource allocations for every major task activity to a level of detail that facilitates report generation based on jobhours for labor craft, equipment class, fabricators, and suppliers. The Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and major equipment to be utilized on the contract.

The Contractor shall optimize labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not over committed in concurrent activities.

The Baseline schedule submitted to the Engineer shall include:

- A. Separate resource graphs for the Contractor's labor, equipment and critical path labor, with an accompanying analysis of each.
- B. Equipment and labor shall be differentiated by a cost account code within the resource dictionary.

Added or changed activities to Updates, Revisions, and other schedules require, at a minimum, the same resource requirements as the baseline schedule.

PROJECT SCHEDULE TABULAR REPORT

A Project Schedule Tabular Report, if required by the Engineer, shall be produced for each schedule update on 8 ½ in. x 11 in. medium.

This tabular report shall show the following information and shall be produced by the Scheduling Software:

- A. Activity number and description;
- B. Original, actual and remaining durations;
- C. Early start date (by calendar date);
- D. Early finish date (by calendar date);
- E. Actual start date (by calendar date);
- F. Actual finish date (by calendar date);
- G. Late start date (by calendar date);
- H. Late finish date (by calendar date);
- I. Identify activity calendar ID;
- J. Total Float; and
- K. Percent complete.

PROJECT SCHEDULE NARRATIVE

The Monthly Update Schedule submitted to the Engineer shall be accompanied by a Project 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:

- A. Work completed during the period;
- B. Description of the current critical path;
- C. Description of current problem areas;
 - o Current and anticipated delays;
 - o Cause of the delay;
 - o Corrective action and schedule adjustments to correct the delay;
 - o Impact of the delay on other activities, milestones, and completion dates;
- D. Changes in construction sequences;

- E. Pending items and status thereof;
 - o Permits;
 - o Change Orders;
 - o Time Extensions;
 - o Non-Compliance Notices;
 - o Notice of Potential Claims;
- F. Contract completion date(s) status;
- G. Ahead of schedule and number of days;
- H. Behind schedule and number of days;
- I. Response to Previous Schedule Comments; and
- J. Reconciliation to key contract dates including CCO's, weather days, and time extensions

PROJECT SCHEDULE NETWORK DIAGRAM (BAR CHART)

Network diagrams or bar charts, if required by the Engineer, shall be sorted and grouped in a format requested by the Engineer reflecting the breakdown per the activity codes. They shall show a continuous flow of information from left to right per the project sorting and grouping codes. The primary paths of criticality shall be clearly and graphically identified on the diagrams or charts. The network diagram or bar chart shall be prepared on E-size sheets (36 in x 48 in), shall have a title block in the lower right-hand corner, and a timeline on each page. The critical path shall be depicted in Red. Portions of the network diagram on which all activities are complete need not be reprinted and submitted in subsequent updates. However, the submitted schedule and the related reports shall constitute a clear record of progress of the work from award of contract to final completion.

MONTHLY UPDATE SCHEDULE

The Contractor shall submit a Monthly Updated Schedule and related reports to the Engineer once in each month within 1 week of the data date. The proposed update schedule prepared by the Contractor shall include all information available as of the 20th day of the month, or other data date as established by the Engineer.

On a date determined by the Engineer, the Contractor shall meet with the Engineer to review the monthly update schedule. 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 will be allowed 2 weeks after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 1 week, at which time a new 1 week review period by the Engineer will begin. All efforts shall be made between the Engineer and the Contractor to complete the review and the acceptance process prior to the next update schedule data date. To expedite the process, a second meeting between the Engineer and the Contractor may be held.

SUBMITTAL REQUIREMENTS

The Baseline and Monthly Update Schedules shall include, at a minimum, the following reports in the quantities as shown:

- A. Contractor's Transmittal Letter;
- B. Two copies of the Project Schedule Narrative Report;
- C. Two copies of the schedule on electronic medium, compressed into a single file, with access restriction removed, sent to the Engineer. This shall be submitted on CD-ROM;
- D. One copy of the schedule (as above) e-mailed to the Engineer.

WEEKLY SCHEDULE PROGRESS 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, address the weekly controlling operation, and to discuss any relevant technical issues. This weekly meeting can be a part of the Weekly Progress Meeting held with the Contractor.

The Contractor shall develop a 4-week rolling schedule identifying the previous week worked and a 3-week look ahead. It shall provide sufficient detail to include the actual and planned activities of the Contractor and all the subcontractors for offsite and construction activities, address all activities to be performed, and identify issues requiring engineering action or input.

Each activity in the 4 week rolling schedule should be identified by an associated CPM schedule activity ID numbering system as indicated in the Baseline schedule or the last accepted Monthly Update Schedule. This schedule shall not be hand written.

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. A detailed list of all proposed schedule changes such as logic, duration, lead/lag, forecast completion date, additions and deletions shall be submitted with the revised schedule. The Contractor shall submit for acceptance an analysis showing the effect of the revisions on the entire project. The analysis shall include:

- A. An updated schedule not including the revisions. The schedule shall have a data date just prior to implementing the proposed revisions and shall include a project completion date;
- B. 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;
- C. The Contractor shall add resources for all new activities, also adjust resources for those activities for which the remaining durations were changed;
- D. A narrative explanation of the revisions and their impact to the schedule;
- E. 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 2 weeks to Contractor's proposed schedule revisions. Within 3 weeks, the Contractor shall submit a revised schedule for acceptance. In addition, a revised schedule shall be submitted when requested by the Engineer, or when any of the following occurs:

- A. There is a significant change in the Contractor's operations that will affect the critical path;
- B. The current updated schedule indicates that the contract progress is 4 weeks 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 2 weeks to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 2 weeks, at which time a new 2-week review period by the Engineer will begin. Only upon acceptance of a change by the Engineer, the change shall be reflected in the next Monthly Update Schedule submitted by the Contractor. The revised schedule shall also include a narrative explanation of the revisions and their impact to the schedule.

TIME IMPACT ANALYSIS

When the Contractor requests a time adjustment due to contract change orders or delayed activities, or if the Contractor or the Engineer considers that an approved or anticipated change will impact the critical path or contract progress, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the impact of each change or delay to the current contract completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a schedule update (an accepted schedule with a data date within the previous month of the event) reflecting the "before conditions", and schedule revision reflecting the "after condition", both with the same data dates, demonstrating how the Contractor proposes to incorporate the change order or delay into the current schedule. The schedule revision shall include the sequence of activities and any revisions to the existing activities to demonstrate the impact of the delay, or change into the schedule. The Time Impact Analysis shall also include proposed mitigation measures or work arounds including but not limited to alternate work calendars, re-sequencing of other activities, or performing work activities out-of-sequence to minimize the impact of the change order or the delayed activities.

Each Time Impact Analysis shall demonstrate the estimated or actual time impact based on the events of delay, the estimated 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 accepted 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 from the time of actual delay, or from the time the contract change order work is performed. Mitigation measures shall be included in the analysis. The Time Impact Analysis shall also consider the use of State-owned float as a mitigation measure. 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 currently accepted contract completion date.
- C. The delay impacts a fabrication or construction activity – delays to the Contractor's submittal or shop drawing process must impact a successor fabrication or construction activity. The Time Impact Analysis shall be based on the impact to fabrication or construction activities.

Time Impact Analysis shall be submitted within 3 weeks after the start of the activity initiating the delay occurs or after initiation of the contract change order. The schedule files shall be submitted on electronic medium along with the Time Impact Analysis, which shall include a narrative description of the delay, its impact on contract completion or milestone dates and proposed mitigation measures. Mitigation measures utilized to minimize the impact of the change order or delay shall include, but are not limited to, work arounds, re-sequencing of work, alternate work calendars, increased resources, expedited procurement, and use of State-owned float.

A response to each Time Impact Analysis by the Engineer will be made within 3 weeks after receipt of the Time Impact Analysis. The Engineer's review shall utilize actual data unless it is appropriate to use estimated data and shall consider the effects of concurrent delays. Resolution of each Time Impact Analysis by the Engineer shall be completed after all effects of the disruption are documented, which may include mitigation measures. A copy of the Time Impact Analysis accepted by the Engineer shall be returned to the Contractor and the accepted schedule revisions illustrating the impact of the contract change orders or delays shall be incorporated into the project schedule during the first update after acceptance. The Engineer may, at his option, construct and utilize the project as-built schedule or other method to determine adjustments in contract time.

FINAL SCHEDULE UPDATE

Within 3 weeks 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 officer 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:

- A. Complete Laptop computer system, with docking station, including external Microsoft ergonomic keyboard, wireless mouse, 25-inch flat panel color monitor, Intel Pentium Duo Core micro processor chip, or equivalent.
- B. Computer operating system software, compatible with the selected processing unit, for Windows XP Professional, or equivalent
- C. Minimum GB of random access memory (RAM) and 1 GB Video Card.
- D. A 400 gigabyte minimum hard disk drive, a CD-ROM Drive 24x, a CD-DVD Readable/Writable Drive, a Combo USB/SD/Card Reader, a 100 MB Ethernet Card, IEEE 802.11a/b/g or later and Bluetooth 2.0 or later wireless capability.
- E. A color laser printer capable of printing 600 dots per inch color or monochrome and equivalent to "HP Color Laser Jet 5550N" model or better
- F. A color-ink-jet plotter with a minimum 36 Megabytes RAM, capable of printing 300 dots per inch in four colors, 600 dots per inch monochrome, or greater, for fully legible, time scaled charts and network diagrams, with a minimum size of 36 in by 48 in (E size), with automatic paper cutter, and compatible with the selected system
- G. Microsoft Office Suite Professional (latest version), or equivalent
- H. Scheduler Analyzer Pro, or equivalent (a suite of programs to assist in schedule analysis), compatible with the latest version for Windows XP Professional, or equivalent
- I. Caltrans-Approved Antivirus and Encryption Software
- J. CPM software shall be Primavera Project Planner Version 3.1, or equivalent

The Contractor shall furnish schedule software and all original software instruction manuals to the Engineer with submittal of the baseline schedule. The furnished equipment and software shall become the property of the State and will not be returned to the Contractor. The State will compensate the Contractor in conformance with the provisions in Section 4-1.03D, "Extra Work," of the Standard Specifications for replacement of software which is damaged, lost or stolen after delivery to the Engineer.

The Contractor shall instruct the Engineer in the use of the software and provide software support until the contract is completed. Within 20 working days of contract approval, the Contractor shall provide a commercial 16 hour training session for 2 Department employees in the use of the software at a location acceptable to the Engineer. It is recommended that the Contractor also send at least 2 employees to the same training session to facilitate development of similar knowledge and skills in the use of the software.

PAYMENT

Progress schedule (critical path method) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path method) shall include full compensation for all labor, materials (including computer hardware and software), tools, equipment, paper, plotter ink, and incidentals; for doing all the work involved in preparing, furnishing, updating and revising CPM progress schedules; and 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 method) will be made as follows:

- A. Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path method) will be made.
- B. Baseline schedule accepted, then 10 percent (20 percent if no interim baseline is required) payment for progress schedule (critical path method) will be made.
- C. Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path method) will be made equally for each update.
- D. Final schedule update accepted, then 5 percent payment for progress schedule (critical path method) will be made.

The Department will retain an amount equal to 25 percent of the monthly pay estimate for each estimate period in which the Contractor fails to conform to the provisions of this section, including failure to submit an interim baseline (if required), baseline, revision or updated CPM, or TIA schedule conforming to the requirements of this section, as determined by the Engineer. Retentions for failure to submit acceptable CPM schedules shall be in addition to all other retentions provided for in the contract. The retention for failure to submit acceptable CPM schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM 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 method). 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.

**Chart No. 8R
Ramp Lane Requirements**

County: Contra Costa	Route: 680 Direction: Southbound	KP: 39.264 PM: 24.391
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Closure Limits: Off Ramp to Marina Vista

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	C	C	C	C	C															C	C	C	C	C	C
Fridays	C	C	C	C	C															C	C	C	C	C	C
Saturdays	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Sundays	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

Legend:

C Ramp may be closed completely

Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

- See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
- This chart shall only be used for raising Mococo Overhead Structure not to exceed 6 weekends.
- Detour traffic to next exit.

REMOVE TRAFFIC STRIPE AND PAVEMENT MARKING

Traffic stripe and pavement marking shall be removed at the locations shown on the plans and as directed by the Engineer.

Attention is directed to "Water Pollution Control" of these special provisions.

Waste from removal of yellow thermoplastic and yellow painted traffic stripe contains lead chromate in average concentrations greater than or equal to 5 mg/L Soluble Lead or 1000 mg/kg Total Lead. Yellow thermoplastic and yellow painted traffic stripe exist as shown on the plans. Residue produced from the removal of yellow thermoplastic and yellow paint contains heavy metals in concentrations that exceed thresholds established by the California Health and Safety Code and Title 22 of the California Code of Regulations. The Contractor shall assume that the residue is not regulated under the Federal Resource Conservation and Recovery Act (RCRA). Yellow thermoplastic and yellow paint may produce toxic fumes when heated.

The removed yellow thermoplastic and yellow paint shall be disposed of at a Class 1 disposal facility in conformance with the requirements of the disposal facility operator within 90 days after accumulating 100 kg of residue and dust. The Contractor shall make necessary arrangements to test the yellow thermoplastic and yellow paint residue as required by the disposal facility and these special provisions. Testing shall include, at a minimum, (1) Total Lead by EPA Method 6010B and Chromium by EPA Method 7000 series, (2) Soluble Lead and Chromium by California Waste Extraction Test, and (3) Soluble Lead and Chromium by Toxicity Characteristic Leaching Procedure. From the first 840 L of waste or portion thereof, if less than 840 L of waste are produced, a minimum of four randomly selected samples shall be taken and analyzed individually. Samples shall not be composited. From each additional 3360 L of waste or portion thereof, if less than 3360 L are produced, a minimum of one additional random sample shall be taken and analyzed. Each sample shall be homogenized prior to analysis by the laboratory performing the analyses. A sample aliquot sufficient to cover the amount necessary for the total and the soluble analyses shall then be taken. This aliquot shall be homogenized a second time and the total and soluble (if necessary) run on this aliquot. The homogenization process shall not include grinding of the samples. The Contractor shall submit the name and location of the disposal facility and analytical laboratory along with the testing requirements to the Engineer not less than 5 days prior to the start of removal of yellow thermoplastic and yellow painted traffic stripe. The analytical laboratory shall be certified by the Department of Health Services Environmental Laboratory Accreditation Program for all analyses to be performed. Test results shall be provided to the Engineer for review prior to signing a waste profile as requested by the disposal facility, prior to issuing an EPA identification number, and prior to allowing removal of the waste from the site.

The Contractor shall prepare a project specific Lead Compliance Plan to prevent or minimize worker exposure to lead while handling removed yellow thermoplastic and yellow paint residue. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific Cal-OSHA requirements when working with lead.

The Lead Compliance Plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Plan shall be submitted to the Engineer at least 7 days prior to beginning removal of yellow thermoplastic and yellow paint.

Prior to removing yellow thermoplastic and yellow painted traffic stripe and personnel who have no prior training, including State personnel, shall complete a safety training program provided by the Contractor that meets the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead," and the Contractor's Lead Compliance Program.

Personal protective equipment, training, and washing facilities required by the Contractor's Lead Compliance Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 5.

Where grinding or other methods approved by the Engineer are used to remove yellow thermoplastic and yellow painted traffic stripe, the removed residue, including dust, shall be contained and collected immediately. Collection shall be by a high efficiency particulate air (HEPA) filter equipped vacuum attachment operated concurrently with the removal operations or other equally effective methods approved by the Engineer. The Contractor shall submit a written work plan for the removal, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe to the Engineer for approval not less than 15 days prior to the start of the removal operations. Removal operations shall not be started until the Engineer has approved the work plan.

The removed yellow thermoplastic and yellow painted traffic stripe residue shall be stored and labeled in covered containers. Labels shall conform to the provisions of Title 22, California Code of Regulations, Sections 66262.31 and 66262.32. Labels shall be marked with date when the waste is generated, the words "Hazardous Waste," composition and physical state of the waste (for example, asphalt grindings with thermoplastic or paint), the word "Toxic," the name and address of the Engineer, the Engineer's telephone number, contract number, and Contractor or subcontractor. The containers shall be a type approved by the United States Department of Transportation for the transportation and temporary storage of the removed residue. The containers shall be handled so that no spillage will occur. The containers shall be stored in a secured fenced enclosure at a location within the project limits until disposal, as approved by the Engineer.

If the yellow thermoplastic and yellow painted traffic stripe residue is transported to a Class 1 disposal facility as a hazardous waste, a manifest shall be used, and the transporter shall be registered with the California Department of Toxic Substance Control. The Engineer will obtain the United States Environmental Protection Agency Identification Number and sign all manifests as the generator within 2 working days of receiving sample test results and approving the test methods.

Additional disposal costs for removal residue regulated under RCRA, as determined by test results, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

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

The contract lump sum price paid for Lead Compliance Plan (Stripe Removal) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Lead Compliance Plan, including paying the Certified Industrial Hygienist, and for providing personnel protective equipment, training, air monitoring, and medical surveillance, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for providing a written work plan for the removal, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe shall be considered as included in the contract prices paid per meter for remove yellow thermoplastic traffic stripe and remove yellow painted traffic stripe and no separate payment will be made therefor.

10-1.39 ASBESTOS-CONTAINING MATERIAL (BRIDGE REMOVAL)

Non-friable asbestos-containing material has been identified in the barrier rail shims of the Pine Lake Undercrossing (Bridge 23-128R) and EB 780 to NB 680 Connector Overcrossing (Bridge 23-129F). Attention is directed to the as-built plans of these structures for details of the barrier rails. Removal of regulated asbestos-containing material, as defined in Regulation 11, Rule 2 of the Bay Area Air Quality Management District, shall conform to the provisions of Rule 2 and Section 1529, "Asbestos," of the Construction Safety Orders, Title 8, of the California Code of Regulations and these special provisions. The Contractor shall submit the required notification of intent to demolish or renovate to the Bay Area Air Quality Management District at least 10 working days, as defined in Rule 2, prior to beginning any demolition, even where no regulated asbestos-containing material (RACM) is present; any renovation operation where the amount of RACM is at least 30.8 linear meters, 9.4 square meters, or 1 cubic meter; and for all dry removals. The Contractor shall pay all fees for conducting the asbestos operations. An asbestos survey report entitled "Site Survey Report, Asbestos and Deteriorated Lead Paint" has been completed for the work areas of this contract. The report is available in the Information Handout.

Attention is directed to Section 7-1.06, "Safety and Health Provisions," and Section 7.101C, "Contractor's Licensing Laws," of the Standard Specifications and "Health and Safety Plan" of these special provisions. Work practices and worker health and safety during any work that results in disturbance of asbestos-containing material shall conform to Section 1529, "Asbestos," of the Construction Safety Orders, Title 8, of the California Code of Regulations. All work including the work to identify and determine the extent of asbestos encountered during bridge demolition/alteration and the removal and disposal of ACM shall be performed by a contractor who is registered pursuant to Section 6501.5 of the Labor Code and certified pursuant to Section 7058.6 of the Business and Professions Code.

The Contractor shall obtain all certifications and registrations required to do the work and certify in writing to the Engineer that the personnel performing the work have completed a training program appropriate for the work involved. Written notification of exposure monitoring results shall be submitted to the Engineer upon completion of the monitoring. A copy of any required written certification of the adequacy of alternative work practices shall be submitted to the Engineer before performing any work.

The requirements of subsection (d), "Multi-employer worksites," of Section 1529, "Asbestos," of the Construction Safety Orders, Title 8, of the California Code of Regulations shall be observed during performance of the work. This shall not be construed as relieving the Contractor from the Contractor's responsibilities as provided in Section 8-1.01, "Subcontracting," of the Standard Specifications.

Any friable asbestos-containing material, or non-friable asbestos-containing material that is damaged during the work so that it becomes friable or is in a finely divided or powdered state, shall be wetted and sealed in leak-tight, non-returnable containers, such as bags of 0.15-mm thick plastic, cartons, drums, or cans. Bulk friable asbestos-containing material, or non-friable asbestos-containing material that may become friable during transport, that will not fit into containers without additional breaking shall be double-wrapped, sealed, and wetted. Trailers, drop-boxes, or other vehicles used for transport of bulk materials shall be lined with plastic sheeting and covered with a tarp. Each container and wrapped material shall be properly labeled, manifested, and transported to a permitted waste management facility in conformance with federal, state, and local regulations. Packaging, storage, transporting, and disposing of ACM shall conform to Division 4.5 of Title 22, California Code of Regulations.

The Engineer will provide the Contractor with a US Environmental Protection Agency Generator Identification Number for disposal of friable asbestos-containing material if encountered. The Engineer will also provide the Contractor with the Department's Board of Equalization Generator Identification Number, which shall be included on each manifest as the State Generator's ID. The Engineer will sign all hazardous waste manifests as the generator. The Contractor shall include the project contract number on each manifest along with the other mandatory information.

Other material that has been in contact with friable, finely divided, or powdered asbestos-containing material shall be cleaned thoroughly before removal from the work area.

Full compensation for removal, transportation, and disposal of asbestos-containing material shall be considered as included in the items of work involved and no additional compensation will be allowed therefor.

CONTAMINATED MATERIAL EXCAVATION

Contaminated material excavation shall consist of excavating, stockpiling, hauling, and disposing of Class II material identified in the following table in conformance with the provisions in the Standard Specifications and these special provisions. Asphalt concrete shall not be considered as included in the limits of Class II material.

Locations	Classification	Vertical Limits (m)
MW Line 3+00 to 6+20, Lt limit to Rt limit	Class II	Full Depth
MV Line 1+80 to 3+00, Lt limit to Rt limit	Class II	Full Depth
CCSB Line 95+40 to 98+60 Lt limit to Rt limit	Class II	Full Depth

Excavated Class II material shall be managed as follows:

- A. Class II material – Haul and dispose of the material at a permitted Class II waste management facility in conformance with Section 20210 of Title 27 of the California Code of Regulations, Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications, and these special provisions.

Class II material shall be transferred directly from the excavation to a transport vehicle, a storage container, or a stockpile location approved by the Engineer. Stockpile locations for Class II material shall be maintained in conformance with the provisions in "Water Pollution Control" of these special provisions. Class II material on exteriors of transport vehicles shall be removed and placed either into the current transport vehicle or the excavation prior to the vehicle leaving the loading area. The cargo shall be covered to prevent spillage or dust. No Class II material shall be deposited on public roads. The Contractor shall indemnify the State from any costs or liability due to spillage during the transport of Class II material to the disposal facility.

The Contractor shall apply water to control dust at all times while performing clearing and grubbing and earthwork operations in work areas containing contaminated material. Water shall be applied in conformance with the provisions in Section 17, "Watering," of the Standard Specifications. Excavation, transportation, stockpiling, and handling of Class II material shall result in no visible dust migration.

Attention is directed to "Contaminated Material, General" and "Health and Safety Plan" of these special provisions.

Sampling and Analysis

The Contractor shall test the material to be disposed for any additional acceptance requirements of the disposal facility and may perform additional tests on the material to be excavated for confirmation of classification specified on the plans and in these special provisions. Sampling and analysis shall be performed using procedures approved by the Engineer and the disposal facility.

Sampling and analysis shall be based on guidelines in the following publications:

USEPA, SW 846, "Test Methods for Evaluating Solid Waste, Volume II: Field Manual Physical/Chemical Methods,"
ASTM, D 1452, "Soil Investigation and Sampling by Auger Borings,"
ASTM, D 1586, "Penetration Test and Split-Barrel Sampling of Soils," and
ASTM, D 1587, "Thin-Walled Tube Sampling of Soils for Geotechnical Purposes."
ASTM D 6282-98(2005), "Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations."

The Contractor shall submit, for approval by the Engineer, a Sampling and Analysis Plan that describes the objective and scope of the investigation; the name, address, and California Department of Health Services Environmental Laboratory Accreditation Program certification number of the testing laboratory; the drilling and sampling methods; analytical methods; and quality assurance/quality control procedures. The Sampling and Analysis plan shall be submitted 15 working days prior to beginning any sampling for additional disposal facility requirements, reclassification of material, or characterization of material outside of the excavation pay limits shown on the plans. The Sampling and Analysis Plan shall be prepared under the guidance of a California registered professional engineer or California registered professional geologist experienced in site characterization.

The Engineer will make the final decision on reclassification or characterization of material after review of the test data. Ten working days shall be allowed for review of test data. Changes in classification of materials will be handled in conformance with the provisions in Section 4-1.03, "Changes," of the Standard Specifications.

Operations shall be conducted in a manner that prevents increases in the quantities of Class II material resulting from mixing with material containing lower contaminant concentrations. No additional payment will be made for material requiring reclassification due to failure to segregate the material after excavation.

Payment

The contract unit price paid per cubic meter for roadway excavation (Class II) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in excavating, stockpiling, loading, sampling and analyzing, hauling, and disposing of Class II material, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.67 RAISE BRIDGE

Raise bridge consists of raising and supporting the superstructure for three simple spans 8L, 9L, and 10L of the left bridge of Mococo Overhead (Modified) (Bridge No. 28-0171) as required to perform bearing assembly replacement work and associated bridge removal (portion) work. This work shall conform to the details shown on the plans, the provisions in Section 15, "Existing Highway Facilities," and Section 51-1.06, "Falsework," of the Standard Specifications and these special provisions.

Temporary supports shall include jacking systems and appurtenant items necessary to jack and support the superstructure.

The Contractor shall determine the methods and equipment for raising the superstructure and shall design, furnish, construct, monitor, maintain and remove the temporary supports and jacking systems for the superstructure in conformance with the requirements in these special provisions.

The Contractor shall be responsible for designing and constructing safe, stable and adequate temporary supports and jacking systems which provides the necessary rigidity, supports the loads imposed, and raises the existing superstructure to the existing lines and new final vertical position shown on the plans.

The Contractor shall provide designated field engineers who are registered as Civil Engineers in the State of California. The Contractor's designated field engineers shall be present at the job site to inspect and monitor when jacks are being adjusted and when jacking is being performed during bridge raising work, associated bridge removal (portion) work and bearing assembly replacement work; and when jacks are being released to set the superstructure into its new final vertical position.

GENERAL

Attention is directed to "Maintaining Traffic" and "Order of Work" of these special provisions. Bridge raising, associated bridge removal (portion) and bearing assembly replacement work shall be performed without public traffic.

Raise bridge shall be undertaken one span at a time. During bridge raising, associated bridge removal (portion) and bearing assembly replacement work, public traffic shall be detoured as specified in section, "Maintaining Traffic," of these special provisions.

Three separate weekend road and bridge closures, consisting of one weekend closure per span, will be available to the Contractor to perform and complete the raise bridge work.

The Contractor shall have all necessary materials and equipment on the site to raise bridge in any one span before detouring public traffic.

Removing portions of the existing bridge, including existing bearing assemblies, shall conform to the requirements in "Bridge Removal," of these special provisions.

New bearing assemblies shall conform to the requirements of "Steel Structures," of these special provisions.

Allowable work prior to the weekend closures to raise bridge shall conform to the details and sequencing shown on the plans.

The Contractor shall use transverse carrier beams to raise the bridge.

The superstructure shall be raised by jacking. Jacking may be performed directly from the bent using temporary jacking brackets mechanically secured to the bent or from temporary supports.

The Contractor shall use no less than three jacks per carrier beam. The Contractor shall use one or two carrier beams on each side of the bent or abutment.

Temporary or permanent stiffening members are required at all existing girder locations directly above the applied jacking forces and shall be bolt connected to the main girder. No welded connection is permitted.

Temporary supports shall remain in place as required to support the structure until the bridge raising, associated bridge removal (portion) and bearing assembly replacement work, shown on the plans, has been completed and the superstructure load completely transferred to the said bearing assemblies and bolted.

The superstructure shall be jacked and adjusted to grade uniformly and in such a manner that a roadway satisfactory for the use of public traffic is provided in conformance with the provisions in Section 7-1.08, "Public Convenience," of the Standard Specifications at the end of closure period for each span.

The Contractor shall submit a complete temporary support plan to the Engineer for each bridge span to be raised, detailing procedures, sequences, and all features required to perform bridge raising in a safe and controlled manner.

The Contractor shall submit to the Engineer working drawings and design calculations for the temporary supports. Such drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. The temporary support working drawings and design calculations shall conform to the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The number of sets of drawings and design

calculations for review of the temporary supports shall be the same as specified for falsework working drawings in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications. The time to be provided for the Engineer's review of the working drawings for specific structures, or portions thereof, shall be as follows:

Structure or Portion of Structure	Review Time - Weeks
Spans 8L, 9L & 10L Mococo OH (Mod) (Br No 28-0171L)	9 weeks

In addition to the requirements in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications, temporary support working drawings shall include the following for each span to be raised and supported:

- A. Description, location, and value of all loads including construction equipment loads
 1. Distribution of vertical design loads on the supports.
 2. Proportionate shares of lateral loads on supports.
- B. PLAN view and ELEVATION view showing locations and types of temporary supports including temporary jacking brackets, carrier beams, jacks with manifolds, and locations of jacks, including:
 1. Minimum bearing areas of temporary jacking brackets or temporary supports.
 2. Jack capacity.
 3. Certified calibration chart for each jack.
 4. Certified indicator to determine jacking force of load gage, pressure cell or load cell.
 5. Size and type of material for carrier beams.
 6. Estimated soil bearing values and anticipated foundation settlement.
- C. Detailed plans showing attachment to the existing structure and material properties for:
 1. Temporary jacking brackets.
 2. Temporary or permanent strengthening and stiffening members to be used.
- D. Methods, equipment and details for:
 1. Mechanical connections between the temporary support and the existing structure.
 2. Jacking system shall be synchronized to lift the span spontaneously and uniformly. Synchronous jacking system with pressure gage, pressure cell or load cell; hoses and manifold; hydraulics and appurtenant items including a copy of the manufacturer's technical specifications. Printable report of all lift operations.
 3. Monitoring system, control points, and schedule for taking measurements.
 4. Restoration of the existing structure after removal of temporary supports, temporary jacking brackets, and temporary strengthening and stiffening members.
- E. Design calculations for:
 1. Mechanical connections between the temporary support and the existing structure.
 2. Stresses due to jacking operations in the existing structure and the temporary supports.
 3. Lateral stiffness of the temporary support.
 4. Vertical load distribution analysis.
- F. Additions or modifications to the structure in connection with the jacking system including details and design calculations.
 1. Temporary strengthening and stiffening members to be used.
 2. Permanent stiffening members.
- G. Mitigation plan for jacking the existing structure should settlement of the temporary support occur.
- H. Names of the Contractor's designated field engineers who will be at the job site.
- I. Verification of the permissible loading for the high pressure petroleum pipelines and other utilities.
- J. Proposed weekend closure schedule with coordinated timeline by the hour of various work (grinding welds, disconnecting existing seismic restrainers, erecting temporary supports, jacking, removing bearing assemblies, cleaning and painting, grinding off mortar pads, installing bearing assemblies, placing new mortar pads, reconnecting existing seismic restrainers, constructing approach slab, and any other work to be done) and the length of time to complete.
- K. Verification that all work to be performed at each girder does not interfere with temporary supports, shimming or jacking of the superstructure or other work.

Working drawings for any part of the temporary supports shall include stress sheets, anchor bolt layouts, shop details, and erection and removal plans.

The jacking system shall include a redundant system of supports for backup in case one of the jacks fails. The redundant system shall include a stack of steel plates that is continually maintained so that there is never more than a 6 mm gap between the system of supports and the superstructure. Collar locking jacks alone are not an acceptable redundant system of support.

For temporary supports over railroads, approval by the Engineer of the temporary support working drawings will be contingent upon the drawings being satisfactory to the railroad company involved.

When footing type foundations are to be used, the Contractor shall determine the bearing value of the soil and shall show the values assumed in the design of the temporary supports on the temporary support drawings. Anticipated temporary support foundation settlement shall be shown on the working drawings.

Pile type foundations shall not to be used for the temporary supports for this project.

Temporary support footings shall be designed to carry the load imposed upon them without exceeding the estimated soil bearing values and anticipated settlements.

The design of temporary supports will not be approved unless it is based on the use of loads and conditions which are no less severe than those described in "Design Loads," of these special provisions and on the use of allowable stresses which are no greater than those described in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications.

DESIGN LOADS

For temporary supports and the jacking systems, paragraphs one of Section 51-1.06.A(1), "Design Loads," of the Standard Specifications is replaced with the following:

- A. The design load for the temporary supports and the jacking system shall consist of the sum of the dead vertical loads and forces, an assumed horizontal load, proposed jacking forces, and loads due to the Contractor's equipment and operation.

The vertical design loads shall be adjusted for the weight of temporary supports and jacks, temporary jacking brackets, temporary or permanent strengthening and stiffening members, construction equipment loads and additional loads imposed by the Contractor's operations.

Temporary lateral bracing shall be provided between the existing girders located over the railroad property at span 8L and for, spans 9L and 10L at the Mococo Overhead (Modified) (Bridge No. 28-0171) bridge. The bracing shall be installed at each end of each girder, or as required by the Contractor, prior to raising the superstructure and shall remain in place until after the new bearing assemblies have been placed. The bracing shall be adequate to prevent unplanned lateral movement of the existing superstructure prior to completion of the associated bridge removal (portion) and bearing assembly replacement work and as a minimum shall be capable of resisting a lateral force of 720 Pa of girder side area applied laterally in either direction to the bottom of the existing steel girder. Raising the superstructure shall not be started until the temporary lateral bracing proposed for use by the Contractor has been approved by the Engineer.

The assumed horizontal load to be resisted by the temporary support shoring and temporary bracing, for bridge raising and temporary support operations only, shall be the sum of the actual horizontal loads due to equipment, construction sequence or other causes, and an allowance for wind, but in no case shall the assumed horizontal load to be resisted in any direction be less than 2 percent of the total dead load of the structure to be raised.

The actual force required for jacking is that which achieves the displacement needed to clear existing anchor bolts and free and replace bearing assemblies. The actual jacking forces, and jacking and support system capacities, shall be determined by the Contractor in accordance with the design loads.

The existing structure shall be mechanically connected to the temporary supports. The temporary supports shall be mechanically connected to their foundations. The mechanical connections shall be capable of resisting the lateral temporary support design forces. Friction forces developed between the existing structure and temporary supports shall not be used to reduce the lateral forces and shall not be considered as an effective mechanical connection. The mechanical connections shall be designed to tolerate adjustments to the temporary support frame throughout the use of the temporary supports.

Proposed permanent modifications to the existing structure to accommodate use of the temporary supports and jacking system shall be designed in conformance with the bridge design specifications and procedures currently employed by the Department. Permanent modifications to the structure shall conform to the requirements in "Steel Structures," and "Clean and Paint Structural Steel," in these special provisions.

Manufactured Assemblies

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications and these special provisions.

Each jack shall be equipped with either a pressure gage, pressure cell, or a load cell for an accurate determination of the jacking force. Within 6 months of use and after each repair, each jack shall be calibrated by a private laboratory approved by the Transportation Laboratory. Each jack and its gage shall be calibrated as a unit with the cylinder extension in the approximate position that it will be at final jacking force and shall be accompanied by a certified calibration chart. Pressure cells and load cells shall be calibrated and provided with an indicator by which the jacking force is determined. Pressure gages shall have an accurately reading dial at least 150 mm in diameter.

A copy of the calibration chart from the jack and gage unit certified by a private laboratory and approved by the Transportation Laboratory shall be submitted to the Engineer before use, and a copy shall be maintained at the job site during equipment use. A copy of the indicator to determine jacking force of load gage, pressure cells or load cells shall be certified by a private laboratory and approved by the Transportation Laboratory shall be submitted with the jack calibration, and a copy shall be maintained at the job site.

SPECIAL LOCATIONS

Regardless of the proximity to the roadway or railroad, temporary supports and jacking systems shall conform to the specifications in Section 51-1.06A(3), "Special Locations," of the Standard Specifications.

TEMPORARY SUPPORT CONSTRUCTION

Attention is directed to paragraphs 1, 2 and 4 through 7 of Section 51-1.06B, "Falsework Construction," of the Standard Specifications. All reference to falsework in these paragraphs shall also apply to temporary supports.

Prior to proceeding with raising the bridge span, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary supports, including jacking and displacement monitoring systems, for conformity with the working drawings. The Contractor's registered engineer shall certify in writing that the temporary supports, including jacking and displacement monitoring systems, conform to the working drawings, and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the site of the work at all times.

The Contractor's designated field engineer shall be present at the bridge site at all times when jacking operations or adjustments are in progress and when bridge raising, associated bridge removal (portion) and bearing assembly replacement work are in progress. The Contractor's designated field engineer shall inspect the jacking and temporary supports and report in writing on a daily basis the progress of the bridge raising, bridge removal (portion) and bearing assembly replacement work and the status of the superstructure.

Progress reports that include monitoring measurements, status of the superstructure, and description of the work shall be signed by the Contractor's designated field engineer and submitted to the Engineer daily during raise bridge operations, associated bridge removal (portion) and bearing assembly replacement work. A copy of the progress reports shall be available at the job site.

Before beginning jacking operations, the Contractor shall make an initial survey of the vertical and lateral alignment of the superstructure, create a report signed by the Contractor's designated field engineer, and submit 2 copies of the report to the Engineer. A copy of the initial survey shall be available at the job site.

Control points shall be established at each girder end. Vertical and horizontal displacements of the superstructure shall be monitored and recorded continuously during jacking operations to ensure that the girders displacement stays within the specified parameters of the control points. During jacking operations at a bent or portion thereof, the following conditions shall be met:

- A. Jacking operations shall be carefully controlled and monitored to ensure that the jacking loads are applied simultaneously and uniformly.
- B. If multiple lifts are used, then at the end of each lift the vertical displacement at all associated monitored control points shall be equal.
- C. There shall be no horizontal displacement of the superstructure including steel girders and deck.
- D. The horizontal alignment of the superstructure shall not deviate from the original/existing structure before raising bridge operations began.

Should unanticipated displacements, cracking or other damage occur or an unplanned event occur, raise bridge operations shall be stopped and the structure stabilized. The Contractor's designated field engineer shall submit immediately to the Engineer for approval, the procedure or proposed operation to correct or remedy the occurrence. Raise bridge operations shall not be continued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor in conformance with the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

Following completion of the bridge raising, associated bridge removal (portion), and bearing assembly replacement work, the vertical displacement at all associated monitored control points of a bent shall not deviate from the raise bent height dimensions shown on the plans or as modified by the Engineer.

After completing jacking operations, the Contractor shall make a final survey of the vertical and lateral alignment of the superstructure, create a report signed by the Contractor's designated field engineer, and submit 2 copies of the report to the Engineer. A copy of the final survey shall be available at the job site.

When raising operations have been completed, all temporary supports, jacking assemblies, temporary strengthening and stiffening members installed on the superstructure for jacking operations shall be removed and the superstructure restored substantially to the condition existing at the time of beginning work under this contract, except where permanent alterations are shown on the plans, or where the Contractor's working drawings detailing permanent strengthening or stiffening members have been approved by the Engineer.

Removed materials that are not to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

PAYMENT

Raise bridge will be paid for on the basis of a contract lump sum price.

The contract lump sum price paid for raise bridge shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in raising and supporting the bridge as required to perform bearing assembly replacement and associated bridge removal (portion) work, including designing, constructing, maintaining, and removing the temporary supports and jacking systems, jacking the superstructure and monitoring displacements, and releasing the jacks to set the superstructure into its new final vertical position, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for furnishing, erecting and connecting and removing temporary strengthening and stiffening members as approved by the Engineer, including field drilling holes, and collecting and properly disposing of debris due to field drilling holes, shall be considered as included in the contract lump sum price for raise bridge and no separate payment will be made therefore.

Full compensation for furnishing, erecting and bolt connecting a structural steel permanent stiffening member to the existing structural steel girder as approved by the Engineer, including cleaning and painting the permanent stiffener member, preparation of the existing structural steel surface, field drilling holes, and collecting and properly disposing of debris due to field drilling holes, shall be considered as included in the contract lump sum price for raise bridge and no separate payment will be made therefore.

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
22	BLANK					
23 (S)	120165	CHANNELIZER (SURFACE MOUNTED)	EA	36		
24	121161	TEMPORARY TERMINAL SECTION (TYPE K)	EA	1		
25 (S)	128650	PORTABLE CHANGEABLE MESSAGE SIGN	LS	LUMP SUM	LUMP SUM	
26 (S)	129000	TEMPORARY RAILING (TYPE K)	M	4500		
27 (S)	012499	PLACE TEMPORARY RAILING (TYPE K)	M	2180		
28 (S)	129100	TEMPORARY CRASH CUSHION MODULE	EA	190		
29 (S)	129150	TEMPORARY TRAFFIC SCREEN	M	2180		
30	150206	ABANDON CULVERT	M	1160		
31	150221	ABANDON INLET	EA	25		
32	150305	OBLITERATE SURFACING	M2	3910		
33	150620	REMOVE GATE	EA	2		
34	150662	REMOVE METAL BEAM GUARD RAILING	M	340		
35	150668	REMOVE FLARED END SECTION	EA	1		
36	150701	REMOVE YELLOW PAINTED TRAFFIC STRIPE	M	3300		
37	150704	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE	M	15 900		
38	150711	REMOVE PAINTED TRAFFIC STRIPE	M	1230		
39	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	M	15 900		
40	150715	REMOVE THERMOPLASTIC PAVEMENT MARKING	M2	28		

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
82	192037	STRUCTURE EXCAVATION (RETAINING WALL)	M3	820		
83	193013	STRUCTURE BACKFILL (RETAINING WALL)	M3	720		
84	193031	PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	M3	160		
85	193114	SAND BACKFILL	M3	270		
86	194001	DITCH EXCAVATION	M3	76		
87	198007	IMPORTED MATERIAL (SHOULDER BACKING)	TONN	200		
88	198200	SUBGRADE ENHANCEMENT FABRIC	M2	3400		
89	012504	GEOMEMBRANE (TYPE B)	M2	9140		
90	012505	LIGHTWEIGHT EMBANKMENT MATERIAL (CELLULAR CONCRETE 4.7KN/M3)	M3	13 800		
91	012506	LIGHTWEIGHT EMBANKMENT MATERIAL (CELLULAR CONCRETE 6.3KN/M3)	M3	20 500		
92 (S)	203018	EROSION CONTROL (NETTING)	M2	2100		
93 (S)	203016	EROSION CONTROL (TYPE D)	M2	63 200		
94 (S)	203021	FIBER ROLLS	M	7120		
95 (S)	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	4		
96 (S)	208304	WATER METER	EA	2		
97 (S)	208731	200 MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT	M	11		
98	250401	CLASS 4 AGGREGATE SUBBASE	M3	5050		
99	260210	AGGREGATE BASE (APPROACH SLAB)	M3	170		
100	260301	CLASS 3 AGGREGATE BASE	M3	1430		

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101	270001	CEMENT TREATED BASE (ROAD-MIXED, CLASS A)	M3	2170		
102	290201	ASPHALT TREATED PERMEABLE BASE	M3	1070		
103	374002	ASPHALTIC EMULSION (FOG SEAL COAT)	TONN	2		
104	390102	ASPHALT CONCRETE (TYPE A)	TONN	38 900		
105	390106	ASPHALT CONCRETE (OPEN GRADED)	TONN	1280		
106	390126	RUBBERIZED ASPHALT CONCRETE (TYPE G)	TONN	97		
107	393001	PAVEMENT REINFORCING FABRIC	M2	1440		
108	394002	PLACE ASPHALT CONCRETE (MISCELLANEOUS AREA)	M2	910		
109	394040	PLACE ASPHALT CONCRETE DIKE (TYPE A)	M	1330		
110	394044	PLACE ASPHALT CONCRETE DIKE (TYPE C)	M	19		
111	394049	PLACE ASPHALT CONCRETE DIKE (TYPE F)	M	520		
112	395000	LIQUID ASPHALT (PRIME COAT)	TONN	21		
113	397001	ASPHALTIC EMULSION (PAINT BINDER)	TONN	18		
114	415101	CRACK EXISTING CONCRETE PAVEMENT	M2	9210		
115 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	335		
116 (F)	511001	LIGHTWEIGHT CONCRETE	M3	1150		
117	510060	STRUCTURAL CONCRETE, RETAINING WALL	M3	310		
118 (F)	510087	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	M3	125		
119 (F)	041128	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R MODIFIED)	M3	45		
120 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	120		

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	680272	100 MM PLASTIC PIPE UNDERDRAIN	M	40		
162	681134	80 MM PLASTIC PIPE (EDGE DRAIN)	M	290		
163	681137	80 MM PLASTIC PIPE (EDGE DRAIN OUTLET)	M	110		
164	682008	PERMEABLE MATERIAL (BLANKET)	M3	2960		
165	690159	300 MM CORRUGATED STEEL PIPE DOWNDRAIN (1.63 MM THICK)	M	24		
166	705220	300 MM CONCRETE FLARED END SECTION	EA	1		
167	705222	450 MM CONCRETE FLARED END SECTION	EA	1		
168	705336	450 MM ALTERNATIVE FLARED END SECTION	EA	1		
169	721011	ROCK SLOPE PROTECTION (BACKING NO. 2, METHOD B)	M3	3		
170	731501	MINOR CONCRETE (CURB)	M3	110		
171	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M3	40		
172	012507	MINOR CONCRETE (COLOR PAVING)	M3	40		
173 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	7020		
174 (S-F)	750496	MISCELLANEOUS METAL (RESTRAINER - PIPE TYPE)	KG	230		
175 (S-F)	750498	MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE)	KG	1650		
176 (S-F)	750500	MISCELLANEOUS METAL	KG	240		
177 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	21 600		
178 (S)	800382	CHAIN LINK FENCE (TYPE CL-0.9, VINYL-CLAD)	M	870		
179 (S)	800385	CHAIN LINK FENCE (TYPE CL-1.2)	M	360		
180 (S)	800389	CHAIN LINK FENCE (TYPE CL-1.5)	M	1330		

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201 (S)	839591	CRASH CUSHION, SAND FILLED	EA	1		
202 (S)	839603	CRASH CUSHION (ADIEM)	EA	2		
203	839701	CONCRETE BARRIER (TYPE 60)	M	1050		
204	839703	CONCRETE BARRIER (TYPE 60C)	M	430		
205	839704	CONCRETE BARRIER (TYPE 60D)	M	470		
206 (F)	839717	CONCRETE BARRIER (TYPE 732 MODIFIED)	M	1894		
207	012512	CONCRETE BARRIER (TYPE 732B) MODIFIED	M	990		
208 (S)	840515	THERMOPLASTIC PAVEMENT MARKING	M2	220		
209 (S)	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	39 600		
210 (S)	840562	150 MM THERMOPLASTIC TRAFFIC STRIPE	M	1430		
211 (S)	840563	200 MM THERMOPLASTIC TRAFFIC STRIPE	M	1610		
212 (S)	840564	200 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 3.66 M - 0.92 M)	M	1200		
213 (S)	840571	100 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 5.18 M - 2.14 M)	M	4950		
214	842000	PARKING BUMPER (PRECAST CONCRETE)	EA	3		
215 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	7510		
216 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	5400		
217 (S)	012513	INSTALLATION OF CALL BOXES	LS	LUMP SUM	LUMP SUM	
218 (S)	860201	SIGNAL AND LIGHTING	LS	LUMP SUM	LUMP SUM	
219 (S)	860298	SIGNAL AND LIGHTING (STAGE CONSTRUCTION)	LS	LUMP SUM	LUMP SUM	
220 (S)	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	

**ENGINEER'S ESTIMATE
04-0060A4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
221 (S)	012514	LIGHTING AND SIGN ILLUMINATION (STAGE CONSTRUCTION)	LS	LUMP SUM	LUMP SUM	
222	860797	ELECTRIC SERVICE (IRRIGATION)	LS	LUMP SUM	LUMP SUM	
223 (S)	012515	RELOCATION OF ELECTRICAL CONTROLS AND RACON	LS	LUMP SUM	LUMP SUM	
224 (S)	861502	MODIFY SIGNAL	LS	LUMP SUM	LUMP SUM	
225 (S)	012516	TRAFFIC OPERATIONS SYSTEM (SOUTH APPROACH)	LS	LUMP SUM	LUMP SUM	
226 (S)	012517	TRAFFIC OPERATIONS SYSTEM (NORTH APPROACH)	LS	LUMP SUM	LUMP SUM	
227 (S)	012518	TRAFFIC OPERATIONS SYSTEM (MAIN BRIDGE SPAN)	LS	LUMP SUM	LUMP SUM	
228 (S)	012519	CAMERA STATION	EA	4		
229 (S)	994650	BUILDING WORK	LS	LUMP SUM	LUMP SUM	
230	BLANK					
231	012735	TEMPORARY RAILROAD CROSSING	LS	LUMP SUM	LUMP SUM	
232	012736	5.0M TEMPORARY CHAIN LINK FENCE (TYPE CL-1.8)	EA	1		
233	071322	TEMPORARY FENCE (TYPE CL-1.8)	M	190		
234	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

ENGINEER'S ESTIMATE
04-0060A4

TOTAL BID (A): = _____

TOTAL BID (B):

\$10,925.00 X _____ = _____
(Cost Per Day) (Enter Working Days Bid)
(Not To Exceed 510 Days)

TOTAL BASIS FOR COMPARISON = _____
OF BIDS: (A + B): _____