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**** WARNING ** WARNING ** WARNING ** WARNING ****
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January 4, 2005

04-CC,Sol-80-20.6/22.7, 0.0/0.8
04-013094

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 CROCKETT AND VALLEJO FROM CUMMINGS SKYWAY OVERCROSSING TO CARQUINEZ TOLL PLAZA.

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

Bids for this work will be opened on January 25, 2005.

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

Project Plan Sheets 9, 13, 22 and 184 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 133A, 133B, 133C, 133D, 133E, 133F, 133G, 133H, 147A, 147B, 147C, 147D, 147E, 147F, 147G, and 147H are added. Half-sized copies of the added sheets are attached for addition to the project plans.

In the NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS, and in the PROPOSAL AND CONTRACT, the Special Notice entitled "PROJECT FUNDING AND OPENING OF PROPOSALS" no longer applies and is replaced with the following:

> "Sources of funding have now been identified and it is anticipated that full project funding for this contract will be available by the currently specified bid open date."

In the NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS, the "Signature Seal Sheet," is added as attached.

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In the Special Provisions, Section 4., "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," the seventh paragraph is revised as follows:

"Phase I shall include mobilization, all submittals reviews, approvals, and material procurement required for completion of the work included in Phase II. Phase II shall consist of the following:

1. 1958 approach deck replacement, including the bridge barrier, all signs, lighting, electrical systems and call box systems that will allow the 1958 approach structure to be completely reopened to traffic with a minimum of 3 lanes with final pavement delineation.
2. Installation of the Seismic Joint.
3. Installation of all electrical systems on Bridge No. 23-15R (1958 Main Bridge) as shown on plans."

In the Special Provisions, Section 5-1.16, "PROJECT INFORMATION," in the second paragraph, item 72 is added as follows:

"72. Temporary Access Trestle-Probing Results"

In the Special Provisions, Section 5-1.175, "INTERNET DAILY EXTRA WORK REPORT," is added as attached.

In the Special Provisions, Section 5-1.29, "FEDERAL AVIATION AGENCY REQUIREMENTS," the second paragraph is revised as follows:

"The Contractor shall be familiar with, and abide by, applicable conditions and requirements as set forth in FAA Aeronautical Study No. 99-AWP-0113-OE. The Contractor shall file appropriate notice with the FAA and the Engineer at least 60 days prior to work requiring FAA notification. Copies of this document may be obtained at the Department of Transportation, District 04, Office of the Construction Program Duty Senior, 111 Grand Avenue, Oakland, California 94612, email duty_senior_district04@dot.ca.gov, telephone number (510) 286-5209."

In the Special Provisions, Section 5-1.30, "RELATIONS WITH U.S. COAST GUARD," in the sixth paragraph item 12 is revised as follows:

"12. Contingency Plan considering but not limited to recovery of barge/vessel breakaway, crane collapse, vessel capsize, bridge collapse, etc."

In the Special Provisions, Section 5-1.30, "RELATIONS WITH U.S. COAST GUARD," the eighth paragraph is revised as follows:

"A minimum of 152 meter shall remain clear for vessel traffic in each navigation channel. The 152 meter clearance in the south channel shall adjoin Pier 3B. The clear channels shall be marked with buoys. The buoys shall be lighted at night with steady burning white lights visible at 2000 meters. The Contractor shall notify the Engineer by submitting a closure plan at least 60 days prior to closing either navigation channel. Channel closure will require authorization of the USCG Captain of the Port in addition to Coast Guard Marine Safety Office's review and approval of the closure plan. Full closure_of either navigation channel may not exceed 48 continuous hours. The number of full closures for either the north or the south navigation channel is limited to 5 each. Forty-eight (48) hour full closure of either navigation channel during lowering and floating-out of bridge sections shall be coordinated in advance with San Francisco Bar Pilots, Coast Guard Vessel Traffic Service, and Bridge Section, Eleventh Coast Guard District. Ship schedules may affect the start/completion times for the bridge removal work over the north navigation channel."

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In the Special Provisions, Section 5-1.37, "PERMITS AND LICENSES," the second paragraph is revised as follows:

"The Department has obtained the following permits for this project:

A. U.S. Coast Guard
B. U.S. Army Corps of Engineers
C. San Francisco Bay Conservation Development Commission (BCDC)
D. Federal Aviation Agency (FAA) Aeronautical Study No. 99-AWP- 0113-OE
E. California Regional Water Quality Control Board Order No. 2118.03(RHW)omt 2128.03
F. California Department of Fish and Game"

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," is revised as attached.

In the Special Provisions, Section 10-1.125, "SOLID WASTE DISPOSAL AND RECYCLING REPORT," is added as attached.

In the Special Provisions, Section 10-1.26, "EXISTING HIGHWAY FACILITIES," the subsection "REMOVE SEISMIC JOINT," is added as attached.

In the Special Provisions, Section 10-1.465, "INSTALL SEISMIC JOINT," is added as attached.

In the Special Provisions, Section 10-1.515, "CLEAN AND PAINT STRUCTURAL STEEL (SEISMIC JOINT)," is added as attached.

In the Special Provisions, Section 10-3, "SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS," is revised as attached.

In the Special Provisions, Section 13-1.02, "RAILROAD REQUIREMENTS," the first paragraph is revised as follows:

"The Contractor shall notify Mr. Patrick Kerr, Manager Industry and Public Projects, 10031 Foothills Blvd., Roseville, CA 95747, Telephone (916) 789-6334, and the Engineer, in writing, at least 21 working days before performing any work on, or adjacent to the property or tracks of the Railroad."

In the Special Provisions, Section 13-1.04, "TRACK CLOSURES," is revised as attached.

In the Proposal and Contract, the Engineer’s Estimate Items 24, 29, 34, 85, 86, and 90 are revised, Item 126 is deleted, and items 127, 128, 129 and 130 are added as attached.

To Proposal and Contract book holders:

Replace pages 4, 7 and 9 of the Engineer's Estimate in the Proposal with the attached revised pages 4, 7 and 9 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Attached are copies of additional District Materials Information.

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.

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This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum and the modified wage rates are 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
Office Engineer

Attachments

CONTRACT NO. 04-013094

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

SEISMIC JOINT

Karla Meier

REGISTERED CIVIL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
Karla F. Meier
No. C 41066
Exp. 3-31-07
CIVIL
STATE OF CALIFORNIA

5-1.175 INTERNET DAILY EXTRA WORK REPORT

When extra work is being paid for on a force account basis, the Contractor shall submit daily extra work reports in conformance with the provisions in Section 9-1.03C, "Records," of the Standard Specifications and these special provisions.

The Contractor shall send daily extra work reports to the Engineer using the Department's Internet extra work billing system. The reports shall conform to the requirements in the "iCAS User's Guide" (Guide). The Guide is available from the Department, and is also found on the Internet at:

http://www.dot.ca.gov/hq/construc/ewb/EWB_INSTRUCTION.pdf

The Department will provide system accounts to the Contractor's authorized representatives when at least one of the representatives has received training. The Department will provide system training to at least one of the Contractor's authorized representatives within 30 days of the Contractor's request for training. The Department will assign an account and user identification to the Contractor's authorized representatives, and each Contractor's authorized representative shall maintain a unique password. A daily extra work report that the Contractor's authorized representative sends to the Department using the Internet extra work billing system will be considered signed by the Contractor. A daily extra work report that the Engineer approves using the Internet extra work billing system will be considered signed by the Engineer.

Daily extra work reports that include billing for materials shall be substantiated by a valid copy of a vendor's invoice in conformance to the requirements in Section 9-1.03C, "Records," of the Standard Specifications. Each materials invoice shall clearly identify the relative daily extra work report and the associated cost of the materials. In addition to postal service and parcel service and if approved by the Engineer, invoices may be sent by facsimile or as an electronic-mail attachment.

The Contractor shall maintain the Contractor's interface with the Department's Internet extra work billing system. If the Contractor is using the file transfer process to submit extra work reports, it shall conform to the file transfer format and process defined in the Guide.

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

Within 70 days of award of contract, the Contractor shall submit a proposed demolition procedure to the Engineer for review and comment.

A first order of work shall be to prepare all submittals and order all material necessary for the completion of work included in Phase II.

The Contractor shall perform all in-water work between the upper and lower limit of delta smelt habitat along the south shore between August 1 and October 31 . No work will be allowed below the Mean Higher High Water (MHHW) level outside the above mentioned dates.

Bridge removal work at Bridge No. 23-0015L and 23-0015R shall be performed only between the hours of 7 A.M. and 7 P.M., except for the span directly above the Railroad and over the waterway, or otherwise approved by the Engineer. The Contractor shall perform bridge removal operations of the main span (Bridge No. 23-0015L) over the waterway, between Piers 2 and 4, in a continuous operation , 7 days a week until bridge removal operations are complete. Attention is directed to "Sound Control Requirements" of these special provisions.

It is the Contractor's responsibility to verify and inspect the condition of the existing bridge and the existing temporary access trestle prior to beginning any work. The Contractor shall submit an inspection report of the existing bridge and existing temporary access trestle to the Engineer 45 days after inspecting the condition of the bridge.

The type of piles, area of shadow fill and volume of solid fill for the temporary access trestle, temporary supports and falsework will be as follows:

1) The total area of the deck of the temporary trestle and temporary supports, if decked, when the elevation of water is at KMHHW shall not exceed 2630 square meters (shadow fill).
2) Only structural shape piles shall be allowed. No pipe piles will be allowed.
3) The total volume of all piles (solid fill) in the Environmentally Sensitive Area shall not exceed 4.1 cubic meters. The pile volume shall be calculated by multiplying cross sectional area of the structural shape pile by the length of pile between the Bay floor and the elevation of water at MHHW. For these calculation, MHHW elevation of 0.8 meter (NGVD 29) should be assumed.
4) The piles shall be vibrated in except that the final 10 meters shall be driven to achieve required capacity. Segment of the Bridge No. 23-0015L, labeled Unit 3 on Demolition Sequence sheets, shall be removed prior to segment labeled Unit 7.

Center lift span truss over south navigation Channel shall be removed before north navigation Channel span.

Construction inside C&H Sugar Company's yard shall be started and completed one stage at a time as shown on contract plans.

Attention is directed to Environmentally Sensitive Area (ESA) and Temporary Fence (Type ESA) as specified in these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field.

No overhead sign panel shall be installed until the overhead sign lighting is completely operational.

No above ground electrical work shall be performed on any system within the project site until all Contractor-furnished electrical materials for that individual system have been tested and delivered to Contractor.

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

The Contractor shall notify the Engineer at least 7 days prior to any work that may disrupt the toll plaza operations, including any toll plaza striping work.

Temporary railing (Type K) and temporary crash cushions shall be secured in place prior to commencing work as shown on the plans or in conformance with "Public Safety" of the special provision.

Before obliterating any pavement delineation that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

Attention is directed to "Relations with U.S. Coast Guard" and "Construction Area Enclosure" of these special provisions.

The work shall be performed in conformance with the stages of construction shown in the Contractor's bridge removal plan approved by the Engineer. Non-conflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction.

No portion of the existing bridge shall at any time during removal be submerged or make contact with the surface of the water in the channel.

In the event that any portion of the existing bridge is dropped into any part of the water, the Contractor shall cease all removal operations and immediately remove the dropped object and notify the Engineer. The Contractor shall not continue removal operations until a revised bridge removal plan is submitted and approved by the Engineer. Should the Contractor neglect or delay compliance with the above requirements, such objects will be removed by the State and the cost of removal will be deducted from the moneys due to the Contractor.

A maximum of 6m width on the 1958 main span structure will be available for the Contractor's access at any time during 1958 approach deck replacement. The alignment of this access width will be subject to approval by the Engineer. The 1958 main span structure shall not be used for material lay down and storage unless otherwise approved by the Engineer.

Attention is directed to the requirements in "Install Seismic Joint" of these special provisions regarding the submittal of a public safety program for the use of the overlay materials; the submittal of working drawings; and the submittal of self-consolidating concrete mix design and placement procedures and performing mock-up construction to demonstrate the self-consolidating concrete.

Not less than 60 days prior to applying seeds, the Contractor shall furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor shall include the names and quantity of seed ordered and the anticipated date of delivery.

Attention is directed to "Maintain Existing Planted Areas" of these special provisions regarding checking for deficiencies of existing plants that are to remain in place, prior to the start of irrigation work.

Unless otherwise shown on the plans or specified in these special provisions, conduits to be jacked or drilled or installed by the open trench method for water line crossovers and sprinkler control crossovers shall be installed prior to the installation of other pipe supply lines.

Clearing, grubbing, and earthwork operations shall not be performed in areas where existing irrigation facilities are to remain in place until existing irrigation facilities have been checked for proper operation in conformance with the provisions in "Existing Highway Irrigation Facilities" of these special provisions.

Attention is directed to "Move-in/Move-out (Erosion Control)" of these special provisions regarding the mobilization of equipment and materials for erosion control work.

10-1.125 SOLID WASTE DISPOSAL AND RECYCLING REPORT

This work shall consist of reporting disposal and recycling of construction solid waste, as specified in these special provisions. For the purposes of this section, solid waste includes construction and demolition waste debris, but not hazardous waste.

Annually by the fifteenth day of January, the Contractor shall complete and certify Form CEM-2025, "Solid Waste Disposal and Recycling Report," which quantifies solid waste generated by the work performed and disposed of in landfills or recycled during the previous calendar year. The amount and type of solid waste disposed of or recycled shall be reported in either metric tonnes or cubic meters. The Contractor shall also complete and certify Form CEM-2025 within 5 days following contract acceptance.

Form CEM-2025, "Solid Waste Disposal and Recycling Report" can be downloaded from the following website:

http://www.dot.ca.gov/hq/construc/manual2001

If the Contractor has not submitted Form CEM-2025, by the dates specified above, the Department will withhold the amount of $10 000 for each missing or incomplete report. The moneys withheld will be released for payment on the next monthly estimate for partial payment following the date that a complete and acceptable Form CEM-2025 is submitted to the Engineer. Upon completion of all contract work and submittal of the final Form CEM-2025, remaining withheld funds associated with this section, "Solid Waste Disposal and Recycling Report," will be released for payment. Withheld funds in conformance with this section shall be in addition to other moneys withheld provided for in the contract. No interest will be due the Contractor on withheld amounts.

Full compensation for preparing and submitting Form CEM-2025, "Solid Waste Disposal and Recycling Report," shall be considered as included in the contract price for the various items of work involved and no additional compensation will be allowed therefor.

REMOVE SEISMIC JOINT

Attention is directed to Section 15-2.04 "SALVAGE," of the Standard Specifications, and these special provisions.

One year after beginning of Phase III, or as directed by the Engineer, the seismic joint shall be removed. This work shall consist of the following:

A. Salvage the deck plates, all bolts and nuts, neoprene sheet and elastomeric washers and deliver to Caltrans METS lab located at 5900 Folsom Boulevard, Sacramento, CA. Support plate and the rest of Channel Assembly shall be removed and disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications.
B. Restore the seismic joint opening as shown on the plans. Self-consolidating concrete shall be in conformance with the specifications in "INSTALL SEISMIC JOINT," of these special provisions.

Measurement and Payment

Remove seismic joint will be paid for on a lump sum basis.

The contract lump sum price paid for remove seismic joint include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in removing the seismic joint, including traffic control, backfill of self-consolidating concrete and asphalt concrete, salvaging components, complete as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.465 INSTALL SEISMIC JOINT

This work shall consist of furnishing a seismic joint and installing it in the roadway in conformance with the details shown on the plans and as specified in the Standard Specifications and these special provisions.

The seismic joint consists of steel deck plates, channel assemblies, support plates, concrete, self-consolidating concrete, sealing elements, gutter, anchorage components, drainage, and a multi-layer polymer concrete overlay. The seismic joint shall be fabricated and installed in conformance with the details shown on the plans and as specified in the Standard Specifications and these special provisions.

Before placing the multilayer polymer overlay on the steel portions of the seismic joint, the Contractor shall submit for approval by the Engineer, a program for public safety associated with the use of the overlay materials during the construction of the project. This program shall identify materials, equipment, and methods to be used. The Contractor shall not perform any overlay work on the seismic joint, other than that specifically authorized in writing by the Engineer, until the program has been approved.

If the measures being taken by the Contractor are inadequate to provide for public safety associated with the use of overlay materials, the Engineer will direct the Contractor to revise the operations and public safety program. These directions will be in writing and will specify the items of work for which the Contractor's program for public safety associated with the use of overlay materials is inadequate. No further work shall be performed on these items until the public safety measures are adequate, and if required, a revised program for public safety associated with the use of overlay materials has been approved.

The Engineer will notify the Contractor in writing of the approval or rejection of any submitted or revised program for public safety associated with the use of overlay materials in not more than 10 working days following submittal.

The State will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised program for public safety associated with the use of overlay materials, nor for any delays to the work due to the Contractor's failure to submit an acceptable program for public safety associated with the use of overlay materials.

WORKING DRAWINGS

The Contractor shall submit working drawings in conformance with the provisions in "Plans and Working Drawings" of these special provisions, and the requirements specified herein.

Working drawings shall include complete details, information, and drawings of the seismic joints and anchorage components and the method, materials, equipment, and procedures for fabrication and installation that the Contractor proposes to use.

Working drawing submittals shall include the following:

A. Fabrication plans including all details, elevations, and sections of the seismic joint as shown on the plans. All dimensions and design tolerances shall be specified. Fabrication plans for the sizes of deck plates and support plates shall consider roadway super elevations and longitudinal gaps between the plates for sealing elements.
B. All ASTM or other material designations.
C. Sections showing all materials comprising the seismic joint with complete details of all individual components including welded splices and connections, welding procedures, and the measures to be taken to prevent steel plate from distortion due to the heat of traction welding.
D. Joint installation plans including methods, materials, equipment, sequence, lifting mechanisms and locations, details of temporary anchorage during setting, temperature adjustment devices, method for maintaining full contact between deck plates and support plates during and after installation, installation details at curbs, seal installation details, and other procedures that the Contractor proposes to use for installation of the seismic joints.
E. Self-consolidating concrete mix design and placement procedures. The Contractor's proposed self-consolidating concrete mix design submittals shall include test results for slump flow, slump flow time to a 500 mm diameter, stability of the concrete mixture, and compressive strengths at 7 and 28 days.
F. Details and procedures of the mock-up construction to demonstrate self-consolidating concrete.
G. List of coating system for seismic joints identifying cleaning and painting of all steel components as specified in "Clean and Paint Structural Steel (Seismic Joint)" of these special provisions.
H. Anchorage components including concrete blockout details and any additions or rearrangements of the reinforcing steel from that shown on the plans.
I. Storage plans for manufacture storage, interim storage, and on-site storage details including temporary support for the seismic joints.

J. Shipping plans including handling of the seismic joints during transportation. Each shipment of the seismic joint materials shall be accompanied by a Certificate of Compliance in conformance with the provisions in Section 6-l.07, "Certificates of Compliance," of the Standard Specifications. The certificate shall state that the materials and fabrication involved comply in all respects to the specifications and data submitted in obtaining approval.

After complete working drawings are received by the Engineer, the Contractor shall allow the Engineer 20 working days to review the submittal. No fabrication of the seismic joint shall begin until complete working drawings are reviewed and approved, in writing, by the Engineer.

The final approval of the Contractor's mix design for self-consolidating concrete is contingent upon the successful mock-up construction as specified in "Demonstration Pours" herein.

MATERIALS

Attention is directed to "Welding" of these special provisions. Welding of seismic joint shall conform to AWS D1.5.

Structural steel shall conform to "Steel Structures" of these special provisions. Structural steel shall conform to the requirements of ASTM Designation: A 709M, Grade 345. Bolts, nuts and washers shall conform to the requirements of ASTM Designation: A 325 or A 325M and "Miscellaneous Metal (Bridge)," of these special provisions.

Sealing elements shall be 2 component silicone sealant that meets the requirements of Type A and AL seal in Section, 51-1.12F(3), "Materials and Installation," of the Standard Specifications. Sealing elements shall conform to the details shown on the plans and shall be continuous without splices.

Structure excavation and structure backfill shall conform to the requirements in Section 19-3 of the Standard Specifications except that structure backfill shall be compacted to a relative compaction of not less than 95 percent.

Concrete shall conform to the requirements specified for other portions of structures in Section 90-1, "General," of the Standard Specifications, the provisions in "Concrete Structures" of these special provisions, and the requirements shown on the plans.

Reinforcing steel shall conform to the provisions in "Reinforcement" of these special provisions.

Gutter shall conform to the provisions in "Miscellaneous Metal (Bridge)," of these special provisions.

Neoprene sheet shall conform to Section 51-1.145, "Strip Waterstops," of the Standard Specifications.

Elastomeric washers shall conform to the requirements specified in Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearing Pads," of the Standard Specifications.

Area drain and associated piping shall conform to the provisions in "Miscellaneous Metal (Bridge)," of these special provisions.

Self-consolidating Concrete

Self-consolidating concrete shall be flowing concrete capable of spreading without segregation to a level state without the use of internal or external vibrators. Self-consolidating concrete shall conform to "Concrete Structures" of these special provisions and the requirements specified herein.

In addition to the chemical admixtures listed on the Department's current list of approved brands of admixtures that may be used, the Contractor may use a viscosity modifying admixture made by a chemical admixture manufacturer for the purpose of producing a self-consolidating concrete. The use of the viscosity modifying admixture shall be in accordance with the manufacturer's recommendations. The combined aggregate grading shall be any of the four maximum size grading limits specified in Section 90-3.04, "Combined Aggregate Gradings," of the Standard Specifications.

The Contractor's proposed mix design shall be pre-qualified for use in the demonstration pour by trial batch reports in conformance with Section 90-9, "Compressive Strength" of the Standard Specifications except that the consistency shall be measured by the slump flow test and bleeding shall be measured by ASTM Designation, C 232, Method A. The slump flow test shall conform to the requirements in ASTM Designation: C 143 except the following:

A. The cone shall be filled in one lift without rodding. The cone shall be placed on a flat, moist, nonabsorbent, rigid base plate that is at least 700x700 mm. The base plate shall have concentric circle marks showing 200-mm and 500-mm diameter circles.
B. Measure the time it takes for the concrete to reach 500 mm diameter circle. Report this as "Slump Flow Time" to the nearest 0.5 seconds.
C. After the concrete ceases to flow, measure the diameter in 2 perpendicular directions. Report this as "Slump Flow" to the nearest 5 mm.

D. Visually inspect the concrete spread to observe the distribution of coarse aggregate throughout the spread. Measure and record the radial width of any mortar ring without coarse aggregate. If no mortar ring without coarse aggregate exists, report as zero.

Consistency of the self-consolidating concrete shall be determined using the slump flow test method. The self-consolidating concrete shall have a minimum slump flow of 550 mm without segregation. The slump flow shall be selected by the Contractor based on the concrete constituent materials and placement procedures as specified in the approved working drawings.

The percent bleeding shall not exceed 1.5% when determined by ASTM Designation, C 232, Method A except that the container shall be filled in one lift without rodding.

Amendment to California Test 540

The following amendments to California Test 540, "Method of Making, Handling, and Storing Concrete Compressive Test Specimens in the Field," shall only apply to self-consolidating concrete. The Items "a" and "b" under "2. Test Specimen Fabrication" of "C. Preparation of Test Specimens" of California Test 540 shall be amended to read:

a. Place test molds on a firm, flat surface to prevent distortion of the bottom surface. When more than one specimen is to be made from the same batch, make all specimens simultaneously. Fill the mold in one lift with a circular motion of the scoop to distribute the concrete evenly in the mold. Pat sides of the mold lightly by hand or jig by rocking the mold from side to side.
b. After the sides of the mold have been patted, strike off the surface of the concrete even with the top edge of the mold. Wipe the sides of the mold free of excess concrete and press the lid on to prevent evaporation.

Demonstration Pours

Prior to placing self-consolidating concrete, the Contractor shall construct at least one mock-up to demonstrate that the concrete will flow for the distance required by the proposed construction procedure. The placement of the self-consolidating concrete in the mock-up shall be witnessed by the Engineer.

The mock-up shall be the depth of the self-consolidating concrete and width of the support plate as detailed on the plans. The mock-up shall include concrete, reinforcement, and all concrete embedments as shown on the plans and approved working drawings, except that all reinforcement and embedments shall stop 300 mm from both longitudinal ends of the blockout so that concrete can be removed later and tested for segregation. The mock-up shall have a removable 27 mm plus or minus 3 mm thick transparent plastic top plate. The plastic top plate shall have vent holes of the same size and spacing as those in the support plate.

Acceptance criteria of the self-consolidating concrete shall be as follows:

A. Self-consolidating concrete shall flow under the plastic top plate and shall completely fill the void in the blockout.
B. After consolidation against the plastic top plate is verified, the Contractor shall remove the plastic top plate and shall take a sample of at least 45 kg of concrete from each end of the blockout to check for segregation by comparing coarse aggregate content with mix design values. The coarse aggregate content of each sample shall be determined using California Test 529 and shall not differ from the mix design value by more than 110 kg/m^3.
C. The percent bleeding shall not exceed 1.5% when determined by ASTM Designation, C 232, Method A except that the container shall be filled in one lift without rodding.

If the concrete fails to meet any of the acceptance criteria as determined by the Engineer, additional mock-ups shall be constructed at the Contractor's expense.

The mock-up shall not be part of the permanent structure and shall become the property of the Contractor. The mock-up shall be removed from the work site 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.

Multilayer Polymer Concrete Overlay

Multilayer polymer concrete overlay consisting one of the following overlay systems shall be placed on one of the steel deck plates as shown on the plans in conformance with the requirements of these special provisions.

PRODUCT NAME	SUPPLIER
POLY-CARB Mark-163 Flexogrid Overlay System	Bay Area Tech Centers 43650 Osgood Road Fremont, CA 94539-5631 Telephone: (510) 659-0571
Low Modulus Polysulphide Epoxy Overlay (T-48)	Transpo Industries Inc. 20 Jones Street New Rochelle, NY 10801 Telephone: (914) 636-1000
Low Modulus Multiple-Layer Epoxy Concrete Overlay	E-Bond Epoxies, Inc. P.O. Box 23069 501 N.E. 33rd Street Ft. Lauderdale, FL 33307

The overlay system shall be placed on the steel deck plate prior to installing the steel deck plate in the roadway.

The Contractor shall notify the Engineer in writing at least three working days prior to placing the overlay system identifying the location where the work is to be performed.

The overlay systems consists of polymer combined in layers with a blend of specially selected aggregate that is broadcast on the spread liquid.

A technical representative from the material manufacturer shall be present during the overlay application.

A Material Safety Data Sheet shall be furnished prior to use for each shipment of polymer resin binder.

The multiplayer polymer concrete overlay shall conform to the following requirements:

A. The overlay thickness shall be 7±1 mm.
B. Surface preparation, placement method, and number of layers of resin and aggregate shall be in conformance with the manufacturer's recommendations.
C. Prior to applying the initial coat, the area to receive the initial coat shall be dry and blown clean by compressed air to remove accumulated dust and any other loose material. The surface temperature shall be as recommended by the manufacturer.
D. Each polymer resin and combined aggregate layer shall cure the minimum duration recommended by the manufacturer.
E. The finished surface of the overlay shall conform to the provisions in Section 51-1.17, "Finishing Bridge Decks," of the Standard Specifications and these special provisions.
F. The surface texture of the overlay shall be uniform and shall have a coefficient of friction of not less than 0.35 as measured by California Test 342. Any surface that fails to conform to the above friction requirements shall be removed as recommended by the manufacturer and the overlay shall be reapplied.
G. The smoothness of the finished surface will be tested with a straightedge. The surface shall not vary more than 6 mm from the lower edge of a 3.6-m±0.06-m long straightedge placed in any direction. Any surface that fails to conform to the above tolerance shall be removed as recommended by the manufacturer and the overlay shall be reapplied.
I. The minimum time following final finishing of the overlay and before installing the steel deck plate in the roadway and loading the overlaid plate with traffic and equipment shall be as recommended by the manufacturer.

FABRICATION

The seismic joint shall be fabricated in conformance with the details, dimensions, material specifications, and procedures shown in the approved working drawings.

The surfaces between deck plates and support plates shall be in full contact. The contact surfaces between deck plates and support plates shall be within one millimeter in 300 mm and within 6 mm over the longest dimension of the plate.

All plate welds shall be ground smooth. The welds shall not protrude into the sliding surface of the deck plates or support plates.

Cleaning and painting of all new metal surfaces of the seismic joints, except where embedded in concrete or overlaid with multiplayer polymer concrete overlay, shall conform to the requirements specified in "Clean and Paint Structural Steel (Seismic Joint)" of these special provisions.

Damage to the seismic joint during shipping or handling shall be cause for rejection of the seismic joint.

Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer prior to installation.

INSTALLATION

The Contractor shall notify the Engineer a minimum of 5 working days before the planned installation of the seismic joint.

The seismic joint shall be installed in accordance with the approved working drawings.

The maximum gap between sliding surfaces shall not exceed 2 mm in any loaded or unloaded position.

The installed seismic joint shall match the finished roadway profile and grades as shown on the plans.

The Contractor shall protect the seismic joint from damage. The Contractor shall protect concrete blockouts and support systems from damage and construction traffic prior to installation of the seismic joints.

Sealing elements not fully bonded to the steel extrusions shall be replaced by the Contractor at the Contractor's expense.

The bridge deck surface shall conform to the provisions in "Asphalt Concrete of these special provisions after installation of seismic joints.

TESTING OF JOINT BY STATE FORCES AFTER INSTALLATION

It is expected that State forces will perform tests on the newly constructed joint for a period 5 working days prior to opening the roadway to public traffic.

The Contractor shall notify the Engineer a minimum of 15 working days before opening the roadway to public traffic.

ADJUSTMENTS AFTER INSTALLATION

It is expected that adjustments will need to be made to the elastomeric washers of the seismic joint after opening the roadway to public traffic.

The Contractor shall furnish labor, tools, equipment, and incidentals as required to assist the Engineer in the adjustment of the elastomeric washers. This work will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

MEASUREMENT AND PAYMENT

Install seismic joint will be paid for on a lump sum basis.

The contract lump sum price paid for install seismic joint include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in fabricating, furnishing, transporting, storing, and installing the seismic joints, including structure excavation, structure backfill, concrete, self-consolidating concrete, bar reinforcing steel, neoprene sheets, gutter, anchorage components, drainage piping and inlets, mock-up construction, cleaning and painting steel components, and furnishing and placing the multilayer polymer concrete, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Asphalt concrete will be measured and paid for separately as specified in "Asphalt Concrete" of these special provisions.

10-1.515 CLEAN AND PAINT STRUCTURAL STEEL (SEISMIC JOINT)

Clean and paint structural steel in this section shall consist of cleaning and painting the seismic joint.

Exposed new metal surfaces, except where galvanized, shall be cleaned and painted in conformance with the provisions in Section 59-2, "Painting Structural Steel," and Section 91, "Paint," of the Standard Specifications and these special provisions.

Prior to submitting the Painting Quality Work Plan (PQWP) required herein, a pre-painting meeting between the Engineer, the Contractor's QCM, a representative from each entity performing painting for this project, and a representative from the manufacturer to provide the paint, shall be held to discuss the requirements for the Painting Quality Work Plan.

Prior to performing any painting or paint removal, the Contractor shall submit to the Engineer, in conformance with the provisions in Section "Working Drawings," elsewhere in these special provisions, 3 copies of a separate Painting Quality Work Plan (PQWP) for each item of work for which painting or paint removal is to be performed. As a minimum, each PQWP shall include the following:

A. The name of each Contractor or subcontractor to be used.
B. One copy each of all current "SSPC: The Society for Protective Coatings" specifications or qualification procedures, and one copy of all ASTM Standards which are applicable to the painting or paint removal to be performed. These documents shall become the permanent property of the Department.
C. A copy of the manufacturer's guidelines and recommendations for cleaning, painting, drying, curing, handling, shipping, and storage of the product.
D. Proposed methods and equipment to be used for any paint application.
E. Proof of each of any required certifications, SSPC-QP 1, SSPC-QP 2, SSPC-QP 3.
F. Proposed methods to control environmental conditions in accordance with the manufacturer's recommendations and these special provisions.
G. Proposed method to protect the product during curing, shipping, handling, and storage.
H. A paint repair plan for the repair of damaged areas.

The Engineer shall have 10 working days to approve the PQWP submittal after a complete plan has been received. No painting or paint removal shall be performed until the PQWP for that work is approved by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the PQWP, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Conformance with the requirements in SSPC-QP 1, SSPC-QP 2, and SSPC-QP 3 of the "SSPC: The Society for Protective Coatings" will not be required for seismic joint.

CLEANING

Exposed new metal surfaces shall be dry blast cleaned in conformance with the requirements in Surface Preparation Specification No. 10, "Near White Blast Cleaning," of the "SSPC: The Society for Protective Coatings." Blast cleaning shall leave surfaces with a dense, uniform, sharp, angular anchor pattern of not less than 40 µm nor more than 86 µm as measured in conformance with the requirements in ASTM Designation: D 4417.

Mineral and slag abrasives used for blast cleaning steel shall conform to the requirements in Abrasive Specification No. 1, "Mineral and Slag Abrasives," of the "SSPC: The Society for Protective Coatings" and shall not contain hazardous material. Mineral and slag abrasives shall comply with the requirements for Class A, Grade 2 to 3 as defined therein.

Steel abrasives used for blast cleaning steel surfaces shall comply with the requirements of SSPC-AB 3, "Newly Manufactured or Re-Manufactured Steel Abrasives" of "SSPC: The Society for Protective Coatings". If steel abrasive is recycled through shop or field abrasive blast cleaning units, the recycled abrasive shall conform to the requirements of SSPC-AB 2 "Specification for Cleanliness of Recycled Ferrous Metallic Abrasives" of "SSPC: The Society for Protective Coatings". The abrasive size and type shall be selected and maintained so as to achieve the required surface profile.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications and a Material Safety Data Sheet shall be furnished prior to use for each shipment of blast cleaning material for steel.

MATERIAL ANOMALIES

Corners shall be rounded to a minimum radius of 2mm..

Preparation of Thermal Cut Edges – Thermal cut edges (TCEs) to be painted shall be conditioned before blast cleaning, if necessary, to achieve proper profile.

Edge conditioning is defined as very shallow grinding or other pre-blast cleaning preparation of thermal cut edges (TCEs) to remove a thin, hardened layer left by resolidification

Base Metal Surface Irregularities – All visually evident surface defects shall be removed in accordance with ASTM A 6 or AASHTO M 160 prior to blast cleaning steel. When material defects exposed by blast cleaning are removed, the blast profile must be restored by either blast cleaning or by using mechanical tools in accordance with SSPC-SP 11.

PAINTING

Blast cleaned surfaces shall receive a single undercoat, and a final coat where specified of an inorganic zinc coating conforming to the requirements in AASHTO Designation M 300, Type 1- or Type II, except that: 1) the first 3 sentences of Section 5.6, "Primer Field Performance Requirements," shall not apply for Type II coatings and the entire Section 5.6.1 shall not apply for either type of inorganic zinc coating.

If the Contractor proposes a Type 1 coating, the Contractor shall furnish to the Engineer for approval documentation as required in Section 5.6 of AASHTO Designation M300. The Contractor shall allow the Engineer 30 working days to review the proposal.

If the Contractor proposes to use a Type II coating, the coating shall be chosen from the qualified products list, which may be obtained from the Transportation Laboratory.

The inside surfaces of bolt holes shall be painted with one application of a zinc rich primer (organic vehicle type) after the application of the undercoat of inorganic zinc on adjacent steel. Finish coats are not required for the inside surfaces of bolt holes.

Inorganic zinc coating shall be used within 12 hours of initial mixing.

Application of inorganic zinc coating shall conform to the provisions for applying zinc-rich coating in Section 59-2.13, "Application of Zinc-Rich Primer," of the Standard Specifications.

Inorganic zinc coating shall not be applied when the atmospheric or surface temperature is less than 7°C nor more than 29°C, nor when the relative humidity exceeds 85 percent.

The single undercoat of inorganic zinc coating shall be applied to the required dry film thickness in 2 or more applications within 4 hours after blast cleaning.

The total dry film thickness of all applications of the inorganic zinc undercoat, including the surfaces of outside existing members within the grip under bolt heads, nuts and washers, shall be not less than 90 µm nor more than 150 µm, except that the total dry film thickness on each faying (contact) surface of high strength bolted connections shall be between 25 µm and the maximum allowable dry film thickness for Class B coatings as determined by certified testing in conformance with Appendix A of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" of the Research Council on Structural Connections (RCSC Specification). Unless otherwise stated, all inorganic zinc coatings used on faying surfaces shall meet the slip coefficient requirements for a Class B coating on blast-cleaned steel, as specified in the RCSC Specification. The Contractor shall provide results of certified testing showing the maximum allowable dry film thickness for the Class B coating from the qualifying tests for the coating he has chosen, and shall maintain the coating thickness on actual faying surfaces of the structure at or below this maximum allowable coating thickness.

Areas where mudcracking occurs in the inorganic zinc coating shall be blast cleaned and repainted with inorganic zinc coating to the specified thickness.

Dry spray, or overspray, as defined in the Steel Structures Painting Manual, Volume 1, "Good Painting Practice," of the "SSPC: The Society for Protective Coatings," shall be removed prior to application of subsequent coats or final acceptance. Removal of dry spray shall be by screening or other methods that minimize polishing of the inorganic zinc surface. The dry film thickness of the coating after removal of dry spray shall be in conformance with the provisions for applying the single undercoat, as specified herein.

The inorganic zinc coating shall be tested for adhesion. Additional testing as defined in this section shall also be required for water borne inorganic zinc and solvent borne inorganic zinc primers. The locations of the tests will be determined by the Engineer. The sequence of the rinsing and testing operations shall be determined by the Contractor. The testing for adhesion will be performed no sooner than 72 hours after application of the single undercoat of inorganic zinc coating. At the Contractor's expense, satisfactory access shall be provided to allow the Engineer to determine the location of the tests.

The following test shall be performed on both water borne inorganic zinc primers and solvent borne inorganic zinc primers:

Adhesion

The inorganic zinc coating shall have a minimum adhesion to steel of 4 MPa. Testing shall be performed at a minimum frequency of 1 test per 100 square meters of painted area using a self-aligning adhesion tester in conformance with the requirements in ASTM Designation: D 4541. The Contractor, at the Contractor's expense, shall: (1) verify compliance with the adhesion requirements, (2) furnish test results to the Engineer, and (3) repair the coating after testing.

Additional Requirements for Water Borne Inorganic Zinc Primers

1. Steel painted with water borne inorganic zinc primer shall be protected at all times from water immersion conditions during curing, shipping, and storage until the surface pH, measured as described herein, is less than 8, and until the coating passes the solvent insolubility test described below. Water immersion conditions are defined as standing water or continuous contact with wet materials for periods in excess of 30 minutes. The Contractor, at the Contractor's expense, shall repair damage caused due to immersion conditions by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

2. The surface pH of the inorganic zinc primer shall be tested by wetting the surface with de-ionized water for a minimum of 15 minutes and no longer than 30 minutes and applying pH paper with a capability of measuring in increments of 0.5 pH units. At least two surface pH readings shall be taken for each 50 square meters or portion thereof. If less than 50 square meters of steel is coated in a single shift or day, at least two surface pH readings shall be taken for primer applied during that period. Application of finish coats will not be permitted until the surface pH is less than 8.

3. Dry to solvent insolubility for water borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub" except that water shall be the solvent. The resistance rating shall not be less than 4. Areas of inorganic zinc coating shall be tested for solvent insolubility at the rate of one test per 50 square meters or portion thereof. Inorganic zinc coating that does not meet the solvent insolubility requirement shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

Additional Requirements for Solvent Borne Inorganic Zinc Primers

1. Dry to solvent insolubility for solvent borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub." The resistance rating shall not be less than 4, "Burnished appearance in rubbed area; slight amount of zinc on cloth after 50 double rubs." The Contractor shall maintain suitable enclosures to protect the inorganic zinc coating from damage caused by the environment until the coating passes this test and is fully cured per the manufacturer's written recommendations.

The color of the final application of inorganic zinc coating shall match Federal Standard 595B No. 36373.

The final coat of inorganic zinc coating shall be applied after testing for adhesion, testing for solvent insolubility, and completion of all operations that may damage or discolor the steel surface, including correction of runs, sags, thin and excessively thick areas in the paint film, skips and holidays, dry spray, or areas of non-uniform appearance.

The area to receive the final coat of inorganic zinc coating shall be lightly roughened by abrasive blasting using an abrasive no larger than 600 µm. Abrasive blasting shall remove no more than 15 µm of inorganic zinc. The surface to be lightly roughened shall be free from moisture, dust, grease or deleterious material. The undercoated areas of the under surfaces of bottom flanges shall be protected from abrasive blast cleaning operations.

The final coat of inorganic zinc coating shall be applied to the required dry film thickness in one uniform application within 24 hours after light roughening. The dry film thickness of the final coat shall be not less than 25 µm nor more than 75 µm.

Except at bolted connections, the total dry film thickness of all applications of the single undercoat and final coat of inorganic zinc coating shall be not less than 115 µm nor more than 225 µm.

Finish coats will not be required.

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ADDED PER ADDENDUM NO. 1 DATED JANUARY 4, 2005

PAYMENT

Full compensation for clean and paint structural steel for seismic joint shall be considered as included in the contract lump sum price paid for install seismic joint and no separate payment will be made therefor.

Full compensation for compliance with the requirements for the program for public safety associated with use of overlay materials shall be considered as included in the contract lump sum price paid for install seismic joint and no separate payment will be made therefor.

SECTION 10-3. SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

10-3.01 DESCRIPTION

Lighting, call box system, remove cable, junction box, signal and luminaires shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions. Attention is also directed to section 10-1.26 “Existing Highway Facilities” of these special provisions.

Lighting equipment are included in the following structures:

A. Carquinez Bridge (Bridge No. 28-0015L) (1927 Bridge)
B. Carquinez Bridge (Bridge No. 23-0015R) (1958 Bridge)

10-3.02 COST BREAK-DOWN

Cost break-downs shall conform to the provisions in Section 86-1.03, "Cost Break-Down," of the Standard Specifications and these special provisions.

The Engineer shall be furnished a cost break-down for each contract lump sum item of work described in this Section 10-3.

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

The cost breakdown shall include Junction Boxes-each type in addition to those listed in the Standard Specifications:

10-3.03 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS

Signal system and call boxes shutdowns shall be limited to periods allowed for lane closures listed or specified in "Maintaining Traffic" of these special provisions.

Traffic signal system shutdowns shall be limited to periods allowed for lane closures listed or specified in "Maintaining Traffic" of these special provisions.

At least three working days prior to performing any work on each existing system, the Contractor shall notify the Department of Transportation, Electrical and Signal Maintenance Superintendent, Phone (415) 330-6500.

10-3.04 CONDUIT

Conduit to be installed underground shall be Type 1 or Type 3 unless otherwise specified. Detector termination conduits shall be Type 3 or Type 4.

The conduit in a foundation and between a foundation and the nearest pull box shall be Type 1.

When a standard coupling cannot be used for joining Type 1 conduit, a UL listed threaded union coupling conforming to the provisions in Section 86-2.05C, "Installation," of the Standard Specifications, or a concrete-tight split coupling, or concrete-tight set screw coupling shall be used.

After conductors have been installed, the ends of conduits terminating in pull boxes, service equipment enclosures, and controller cabinets shall be sealed with an approved type of sealing compound.

At those locations where conduit is required to be installed under pavement and existing underground facilities require special precautions in conformance with the provisions in "Obstructions" of these special provisions, conduit shall be placed by the "Trenching in Pavement Method" in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications.

At other locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the "Trenching in Pavement Method."

At the option of the Contractor, the final 0.6-m of conduit entering a pull box in a reinforced concrete structure may be Type 4.

Where 6 or more conduits of metric trade Size 78 enter a No. 6 pull box, the conduits shall enter at an angle not greater than 45-degrees from the horizontal.

10-3.05 PULL BOXES

Grout shall not be placed in the bottom of new or existing pull boxes.

Pull boxes for circuits labeled "(CITY/COUNTY) CIRCUIT" on the plans shall not have the "CALTRANS" cover marking. The covers shall be marked.

10-3.06 CABLES, CONDUCTORS AND WIRING

The cable, and/or conductor splices shall be insulated by "Method B" or per manufacturer's recommended method for the given application and environment for non-power cables.

The call box power conductors shall only be spliced inside the pull boxes and junction boxes. The call box power conductors shall have fused splice connectors with voltage rating 120 V(ac) and with current required by the National Electrical Code (NEC).

The terminal resistor shall be installed at the last device connected to the call box communication cable and for the proper and safe operation of the call boxes. The cable impedance matching components shall also be installed at the call box communication terminals for all call boxes.

The Contractor shall provide, and install a 5-V surge suppression diode between the communication cable drain wire of the call box and the ground terminal of the call box for all the call boxes.

The minimum insulation thickness, at any point, for Type USE, RHH or RHW wire shall be 1.0 mm for conductor sizes No. 14 to No. 10, inclusive, and 1.3 mm for No. 8 to No. 2, inclusive. The minimum insulation thickness, at any point, for Type THW and TW wires shall be 0.69 mm for conductor sizes No. 14 to No. 10, inclusive, 1.02 mm for No. 8, and 1.37 mm for No. 6 to No. 2, inclusive.

All armored cables shall be galvanized steel interlocking-type armor polyvinyl chloride ultraviolet resisted (used for outdoor applications) outer-jacketed armored cables with copper conductors (size, type and number as specified on the plans) unless other wise specified

CALL BOX COMMUNICATION CABLE

The call box communication cable shall be a shielded twisted pair copper conductor cable that is rated as telephone cable conforming to the ANSI/ICEA S-84-608-1994 and RUS 7 CFR 1755.390 (Formerly the Rural Electrification Administration Specification PE-39). The number of pairs and conductor size for the call box communication cable shall be as specified on the plans.

The conductors shall be solid annealed copper, with color-coded polyethylene insulation or color-coded polyolefin insulation for 3 pairs or less. Each pair shall be twisted together with varied lay to form a cylindrical core completely covered with a non-hygroscopic tape. The core shall be shielded with 0.230 mm coated, corrugated aluminum tape applied longitudinally with an overlap, and protected by a black polyethylene jacket. The interstices between the pair shall be filled with an 80 degree C filling compound to prevent the entrance of water. All components of the cable shall be completely covered with a non-toxic, non-caustic compound. The cable shall have a polyethylene inner jacket completely covered by an overlap of 0.2 mm polymer coated aluminum tape with a black polyethylene outer jacket.

TESTING

The Contractor shall perform a high-voltage series lighting test consisting of the open circuit voltage of the connected constant current transformer between conductors and ground.

The high-voltage test shall not be performed on existing circuits or equipment. Non-testing of existing circuits and equipment shall not relieve the Contractor from the responsibility for malfunctioning of existing lighting circuits due to the Contractor making splices in or connecting to the circuits and such malfunctions shall be corrected at the Contractor's expense.

Signal conductors for ramp meters shall be color coded as follows:

Phase	Base	Stripe	Band Symbols
1	Re, Ye, Brn	None	1
2	Re, Ye, Brn	Black	2
3	Re, Ye, Brn	Purple	3
4	Re, Ye, Brn	Orange	4

Traffic signal conductors for phase overlaps shall be double striped as follows:

Signal Phase	Base Color	Double Stripe Color
OLA	Re, Ye, Brn	Black/Blue
OLB	Re, Ye, Brn	Black/Orange
OLC	Re, Ye, Brn	Black/Purple
OLD	Re, Ye, Brn	Black/Gray

Signal cable shall not be used.

Type TW insulation shall not be used for the CMS service feeder, nor for the CMS branch circuit conductors between the service pedestal and the CMS.

Splices for cables will not be allowed, except where shown on the plans.

10-3.07 BONDING AND GROUNDING

Bonding and grounding shall conform to the provisions in Section 86-2.10, "Bonding and Grounding," of the Standard Specifications and these special provisions.

Bonding jumpers in standards with handholes and traffic pull box lid covers shall be attached by a UL listed lug using 4.5-mm diameter or larger brass or bronze bolts and shall run to the conduit or bonding wire in the adjacent pull box. The grounding jumper shall be visible after the standard has been installed and the mortar pad and cap have been placed on the foundation.

Standards without handholes shall have bonding accomplished by jumpers attached to UL listed ground clamps on each anchor bolt.

For slip base standards or slip base inserts, bonding shall be accomplished by jumpers attached to UL listed ground clamps on each anchor bolt, or a UL listed lug attached to the bottom slip base plate with a 4.5-mm diameter or larger brass or bronze bolt.

Equipment bonding and grounding conductors are required in conduits, except when the conduits contain combinations of loop lead-in cable, fiber optic cable, or signal interconnect cable. A No. 8 minimum, bare copper wire shall run continuously in circuits, except for series lighting circuits, where No. 6 bare copper wire shall run continuously. The bonding wire size shall be increased to match the circuit breaker size in conformance with the Code, or shall be as shown on the plans. Conduits to be installed for future conductors, may omit the copper wire.

Bonding of metallic conduits in metal pull boxes shall be by means of bonding bushings and bonding jumpers connected to the bonding wire running in the conduit system.

10-3.08 LUMINAIRES

The luminaire shall be cutoff style. The luminaire shall have rugged die-cast aluminum housing and shall be powder-coated. Die-cast secondary power pad door shall place all electrical components on one interchangeable module with quick disconnect to main fixture housing. The luminaire shall have four-bolt for mounting. It shall have die-cast trigger latch on lens frame and shall have one-hand opening for re-lamping.

The luminaire shall have a large surface area “breathing seal” gasket that seals the optical chamber to prevent intrusion by insects and environmental contaminants. It shall have a heat-resistant gasket material that remain effective over the life of the fixture.

Wildlife shield shall be cast into the housing (Monolithic) on the four-bolt unit and shall be adjustable for 32mm to 51mm mast arms.

The luminaire shall have anodized aluminum reflectors.

The luminaire shall have NEMA wattage label and three-position terminal block.

All electrical components shall be warranted for 6-year guarantee and shall comply with ANSI: C136.2, C136.10, C136.14, C136.15, C136.17

The Luminaire shall be suitable for operation for ambient temperature ranges from: -30degC to 25degC MH&MV/-40degC to 25degC HPS.

The Luminaire shall be of the following type and rating:

Series	315 power door cobra head
Wattage	310
Sources	HPS.
Ballast	CWA type
Voltage	480V
Distribution	Roadway Type III
Optics	FG Flat Glass Clear Tempered

The Luminaire shall have the following features:

Paint:	gray (standard)
Terminal Block	standard
Listing	UL listed
Fusing	DF (480V)
Lamp	LC (Lamp Included clear)
Starter	EC(Encapsulated Plug-in)
Miscellaneous	SS(stainless Steel Hardware)

10-3.09 JUNCTION BOX

The junction box shall be a NEMA type 4X 316L stainless steel junction box with a continuous hinge use for housing electrical components in highly corrosive environments that shall meet the following specifications.

CONSTRUCTION
16 and 14 gauge type 316L stainless steel
Seams continuously welded and ground smooth, no hales or no knockouts
Seamless foam-in-place gasket assures watertight and dust tight seal
Stainless steel screws and claps assure watertight seal
Stainless steel panel screws (10-32 pan head)
Stainless steel continuous hinge pin
Door removed by pulling stainless steel continuous hinge pin
Weldnuts provided for mounting steel panel
Left side to be hinged
Dimensions as specified on the plan

ACCESSORIES
Corrosion inhibitors
14 gauge steel panel

FINISH
The enclosure shall be unpainted unless otherwise specified
Cover and sides of body shall have smooth brushed finish.
The steel panel shall be painted white

INDUSTRY STANDARDS

UL Type 4X
NEMA/EEMAC Type 4X
JIC standard EGP-1-1967
CSA Type 4X
IEC 529, IP66

10-3.10 REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT

Salvaged electrical materials shall be hauled to Caltrans Electrical Maintenance Station, 30 Rickard Street, San Francisco, CA 94134, (415) 330-6509 and stockpiled.

The Contractor shall provide the equipment, as necessary, to safely unload and stockpile the material. A minimum of 2 working days' notice shall be given prior to delivery

10-3.11 PAYMENT

Full compensation for complying with requirements contained in these provisions and to special provisions section 10-1.26 "Existing Highway Facilities" shall be considered as included in the contract prices paid for the various electrical items of work, and no additional compensation will be allowed therefor.

The contract lump sum price paid for signal shall include signal removal as shown on the plans and no additional compensation will be allowed therefor.

The contract lump sum price paid for removal of cable, junctions box, signals and luminaires shall include cable, junctions box, signals and luminaires removal as shown on the plans and no additional compensation will be allowed therefor.

The contract lump sum price paid for lighting on the project, shall include lighting at intersection connected with signals and lighting installation on the bridges and roadways as shown on the plans and no additional compensation will be allowed therefor.

Full compensation for hauling and stockpiling electrical materials shall be considered as included in the contract price paid for the items requiring the material to be salvaged and no additional compensation will be allowed therefore.

The contract lump sum price paid for callbox system shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipments, and incidentals, including documentation shown on the plans, as specified in the Standard Specification and these special provisions, and as directed by the Engineer.

Full compensation for maintaining existing electrical systems on Bridges Number 23-15R/L during phase II shall be considered as included in the contract lump sum prices paid for lighting, signal, callbox system, and removal of cable, junctions box, signals and luminaires and no additional compensation will be allowed therefor.

13-1.04 TRACK CLOSURES

If it is determined that full track closures are required to meet Railroad requirements in the performance of the work under this contract, the following limitations shall apply:

(a) For the deck replacement on the 1958 structure (Bridge No. 23-15R), no more than two (2) series of full track closures, each from 2:00 a.m. to 6:00 a.m. (four hours) on four consecutive nights (Saturday, Sunday, Monday, and Tuesday), will be made available, for a total of 32 closure hours.

(b) For the demolition of the 1927 structure (Bridge No. 23-15L), no more than six (6) series of full track closures, each from 2:00 a.m. to 6:00 a.m. (four hours) on four consecutive nights (Saturday, Sunday, Monday, and Tuesday), will be made available, for a total of 96 closure hours. No more than two (2) such series of closures will be permitted during any four week period.

(c) The Contractor shall stop concrete removal operations on bridge spans above railroad when trains run on tracks below through communication and coordination with the Railroad flagger.

Requests for track closures must be received by the Railroad's Representative by mail or fax at least 21 calendar days in advance of the first day of each series.

ENGINEER'S ESTIMATE
04-013094

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	033869	ASBESTOS SURVEY (BRIDGE REMOVAL)	LS	LUMP SUM	LUMP SUM	
22	150744	REMOVE ROADSIDE SIGN (WOOD POST)	EA	7		
23	150747	REMOVE ROADSIDE SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	5		
24 (S)	150760	REMOVE SIGN STRUCTURE	EA	2		
25	150805	REMOVE CULVERT	M	160		
26	150820	REMOVE INLET	EA	5		
27 (S)	150824	REMOVE SEWER MANHOLE	EA	3		
28	150860	REMOVE BASE AND SURFACING	M3	2320		
29 (S)	152394	RELOCATE SIGN STRUCTURE	EA	2		
30	152430	ADJUST INLET	EA	2		
31	152432	ADJUST MANHOLE	EA	2		
32 (S)	152475	ADJUST SEWER MANHOLE	EA	1		
33	152609	MODIFY INLET TO MANHOLE	EA	4		
34 (S)	153153	COLD PLANE ASPHALT CONCRETE PAVEMENT (45 MM MAXIMUM)	M2	1580		
35	153210	REMOVE CONCRETE	M3	28		
36	153229	REMOVE CONCRETE BARRIER (TYPE K)	M	1870		
37	157551	BRIDGE REMOVAL, LOCATION A	LS	LUMP SUM	LUMP SUM	
38	157552	BRIDGE REMOVAL, LOCATION B	LS	LUMP SUM	LUMP SUM	
39	157553	BRIDGE REMOVAL, LOCATION C	LS	LUMP SUM	LUMP SUM	
40	157554	BRIDGE REMOVAL, LOCATION D	LS	LUMP SUM	LUMP SUM	

REVISED PER ADDENDUM NO. 1 DATED JANUARY 4, 2004

ENGINEER'S ESTIMATE
04-013094

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81 (S-F)	520101	BAR REINFORCING STEEL	KG	8700		
82 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	1100		
83 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	KG	388 000		
84 (S-F)	550102	STRUCTURAL STEEL (BRIDGE)	KG	55 500		
85 (F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	7550		
86 (S-F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	7550		
87	566011	ROADSIDE SIGN - ONE POST	EA	22		
88	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	5		
89	568016	INSTALL SIGN PANEL ON EXISTING FRAME	M2	26		
90 (S-F)	575004	TIMBER LAGGING	M3	25		
91 (S)	590135	SPOT BLAST CLEAN AND PAINT UNDERCOAT	M2	2540		
92 (S)	049792	WORK AREA MONITORING (LOCATION A)	LS	LUMP SUM	LUMP SUM	
93 (S)	049793	WORK AREA MONITORING (LOCATION B)	LS	LUMP SUM	LUMP SUM	
94 (S)	049794	WORK AREA MONITORING (LOCATION C)	LS	LUMP SUM	LUMP SUM	
95	620909	450 MM ALTERNATIVE PIPE CULVERT	M	220		
96	620933	1200 MM ALTERNATIVE PIPE CULVERT	M	98		
97	703233	GRATED LINE DRAIN	M	33		
98	703536	200 MM WELDED STEEL PIPE (3.40 MM THICK)	M	60		
99 (S)	719210	CONCRETE SEWER MANHOLE	EA	4		
100 (S)	033873	200 MM DUCTILE IRON SEWER PIPE	M	130		

REVISED PER ADDENDUM NO. 1 DATED JANUARY 4, 2004

ENGINEER'S ESTIMATE
04-013094

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
121 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	810		
122 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	570		
123 (S)	033877	SIGNAL	LS	LUMP SUM	LUMP SUM	
124 (S)	860401	LIGHTING	LS	LUMP SUM	LUMP SUM	
125 (S)	033878	CALL BOX SYSTEM	LS	LUMP SUM	LUMP SUM	
126	BLANK					
127	033990	REMOVE SEISMIC JOINT	LS	LUMP SUM	LUMP SUM	
128 (S)	033991	INSTALL SEISMIC JOINT	LS	LUMP SUM	LUMP SUM	
129	033992	REMOVE CABLE, JUNCTION BOX AND LUMINARIES	LS	LUMP SUM	LUMP SUM	
130	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

= TOTAL BID (A): _____

TOTAL BID (B):

$ 50000.00 **X** _____ **=** _____

(Cost Per Day) **(Enter Working Days Bid)**
(Not To Exceed 190 Days)

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

REVISED PER ADDENDUM NO. 1 DATED JANUARY 4, 2004