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August 7, 2009

03-Sac-50-R5.3/12.8
03-441614
CMLN-6203(033)

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN SACRAMENTO COUNTY IN AND NEAR RANCHO CORDOVA FROM WATT AVENUE OVERCROSSING TO SUNRISE BOULEVARD.

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 Tuesday, September 22, 2009.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions, and the Bid book.

Project Plan Sheets 6, 9, 13, 27, 70, 71, 85, 104, 105, 160, 185, 195, 260, 265, 267, 314, 352, 353, 354, and 355 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 537A, 537B, and 537C are added. Copies of the added sheets are attached for addition to the project plans.

Project Plan Sheets 156 and 157 are deleted.

In the Notice to Bidders and Special Provisions, in the "SPECIAL NOTICES," the following Special Notice is added:

- See Section 2, "Bidding," of these special provisions regarding a mandatory prebid meeting."

In the "NOTICE TO BIDDERS," the fifteenth paragraph is revised as follows:

"A mandatory prebid meeting is scheduled for this project at The Rancho Cordova Chamber of Commerce, Rancho Cordova City Hall 2729 Prospect Park Drive, Rancho Cordova, CA 95670, on August 26, 2009, from 10:00 a.m. to 12:00 p.m."

In the Special Provisions, Section 2-1.02, "MANDATORY PREBID MEETING," is added as follows:

"2-1.02 MANDATORY PREBID MEETING

The Department will conduct a mandatory prebid meeting for this contract. The purpose of the meeting is to provide small businesses the opportunity to meet and interact with prospective bidders and increase participation in the performance of contracts.

Prospective bidders must attend the mandatory prebid meeting. The bidder's representative must be a company officer, project superintendent, or project estimator. For a joint venture, one of the parties must attend the mandatory prebid meeting. The Department will not accept bids from bidders who do not attend the mandatory prebid meeting.

A sign-up sheet will be used to identify all prospective bidders including name and title of the company representative attending the mandatory prebid meeting. The Department may hold a single prebid meeting for more than one contract. Make sure you sign the sign-up sheet for the contract you intend to bid on. If bidding multiple contracts, sign each sign-up sheet for each contract you intend to bid on.

The successful bidder will be required to report small businesses hired to work on this contract as a result of the mandatory prebid meeting."

In the Special Provisions, Section 10-1.01,"ORDER OF WORK," the thirteenth and fourteenth paragraphs are revised as follows:

"The northbound Zinfandel Road loop on-ramp to the westbound US 50 may be closed up to one time during the life of this contract for an extended 55-hour period. The ramp may be closed starting at 2200 hours on Friday and reopened no later than 0500 hours on the following Monday. During this closure, all other ramps within the project limits shall be open for public traffic."

"The southbound Zinfandel Road loop on-ramp to the eastbound US 50 may be closed up to one time during the life of this contract for an extended 55-hour period. The ramp may be closed starting at 2200 hours on Friday and reopened no later than 0500 hours on the following Monday. During this closure, all other ramps within the project limits shall be open for public traffic."

In the Special Provisions, Section 10-1.37, "EROSION CONTROL (TYPE D)," subsection "APPLICATION," the tables under Items 1 and 2 are revised as follows:

"

Material	Pounds Per Acre (Slope Measurement)
Seed	20
Fiber	400
Commercial Fertilizer	360

Material	Pounds Per Acre (Slope Measurement)
Fiber	600
Stabilizing Emulsion (Solids)	140

"

In the Special Provisions, Section 10-1.535, "RETROFIT EXISTING CONCRETE PAVEMENT WITH DOWEL BARS AT TRANSVERSE JOINTS" is added as attached.

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In the Special Provisions, Section 10-3.23, "PHOTOVOLTAIC POWER SUPPLY FOR MVDS," subsection "GENERAL," the second paragraph is revised as follows:

"Each PV Power Supply for MVDS shall be designed to provide 24 volts DC to the MVDS System 24 hours per day and shall be capable of operating four days without additional charge from the PV panels. A Load/Charge Controller shall charge the batteries during daytime while providing 24 VDC to the MVDS System 24 hours per day. A Panel Support Structure shall be furnished and installed to securely fasten the PV Panels to the Type 15TS or CCTV 35 Standards as shown on the project plans."

In the Special Provisions, Section 10-3.23, "PHOTOVOLTAIC POWER SUPPLY FOR MVDS," subsection "BATTERIES," the second paragraph is revised as follows:

"They shall be identical in make and model. All connections shall be marine grade. The batteries shall be interconnected in series to provide 24 volts DC. Interconnections shall be made with molded 3 prong plugs, provided as a power output connection and battery disconnect. An ATO water resistant fuse holder and specified for the given model system shall be included. The battery shall be 100% recyclable and capable of a minimum of 1000 cycles in this application."

In the Bid book, in the "Bid Item List," Items 57, 80, 105, 112, 122, 133, 170, 171, 172, 193, 198, and 210 are revised. To Bid book holders:

Replace pages 5, 6, 8, 9, 11, 12, and 13 of the "Bid Item List" in the Bid book with the attached revised pages 5, 6, 8, 9, 11, 12, and 13 of the Bid Item List. The revised Bid Item List 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 Bidders section of the Notice to Bidders 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 Bid book.

Submit bids in the Bid 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 addendum and attachments are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/03/03-441614

If you are not a Bid 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
Division of Engineering Services

Attachments

10-1.535 RETROFIT EXISTING CONCRETE PAVEMENT WITH DOWEL BARS AT TRANSVERSE JOINTS

GENERAL

Three epoxy-coated round steel dowel bars per wheel path shall be placed in existing concrete pavement at transverse weakened plane joints at the locations shown on the plans and as provided in these special provisions

PRECONSTRUCTION CONFERENCE (DOWEL BAR RETROFIT)

Supervisory personnel of the Contractor and any subcontractor who are to be involved in the slot cutting and dowel bar placement work shall meet with the Engineer at a preconstruction conference, at a mutually agreed time and location, to discuss methods of accomplishing all phases of the work.

The Contractor shall provide a facility for the conference. The facility shall be within 3 miles of the construction site or at a nearby location agreed to by the Engineer and Contractor. Attendance at the conference is mandatory for the project superintendent, construction foreman, subcontractors and equipment operators involved in cutting slots or placing dowel bars. All conference attendees shall sign an attendance sheet provided by the Engineer. Cutting of slots and placement of dowel bars shall not proceed unless the above-mentioned personnel have attended the conference.

The above-mentioned personnel along with the Engineer's representatives shall attend a 4-hour training class on dowel bar placement techniques as part of the preconstruction conference. This training class time shall be in addition to the conference time. The class shall be scheduled no more than 2 weeks prior to the placement of dowel bars. The class shall be held during normal working hours. Selection of the instructor shall be as agreed to by the Engineer and the Contractor.

The training class may be waived if the Contractor can provide written verification of prior acceptable work experience and training involving the placement of dowel bars in existing concrete pavement.

TEST STRIP

The Contractor shall retrofit dowel bars, including concrete removal, placing polyester concrete, and pavement grinding, in an initial test strip of concrete pavement at a site directed by the Engineer prior to the start of major operations. The test strip shall be a minimum of one traffic lane width and a minimum of 100 yards long. Twenty-four hours after the completion of the dowel bar placement and the filling of the slots with polyester concrete, the Contractor shall take 3 full depth cores, at 3 separate joint locations directed by the Engineer to determine the completeness of the removal and installation operations. Core drilling shall conform to the requirements in these special provisions. If the results of the test strip conform with the plans and specifications, the Contractor may begin production operations using the methods and materials used in the test strip, and shall proceed on a performance basis. The working days for the test strip shall be considered as part of the total contract time.

MATERIALS

Dowel Bars

Dowel bars shall be plain, smooth, round, epoxy-coated steel conforming to the requirements in ASTM Designation: A 615/A 615M, Grade 40 or 60, the details shown on the plans and the provisions in Section 52-1.02B, "Epoxy-coated Reinforcement," of the Standard Specifications, except that the two samples required in ASTM Designation: D 3963/D 3963M shall be 18 inches long. Epoxy coating of dowel bars shall conform to the provisions in ASTM Designation: A 884/A 884M, Class A, Type 1 or Type 2, except that the bend test shall not apply.

Dowel bars shall be free from burrs or other deformations detrimental to free movement of the bars in the concrete.

Bond Breaker

Dowel bars shall be lubricated with bond breaker over the entire bar. A bond breaker application of petroleum paraffin based lubricant shall be used to coat the dowel bars completely prior to concrete placement. Oil or asphalt based bond breakers shall not be used. Curing compounds shall not be used. Paraffin based lubricant shall be Dayton Superior DSC BB-Coat or Valvoline Tectyl 506 or an approved equal. Paraffin based lubricant shall be factory applied.

Expansion Cap

Expansion caps shall be tight fitting, commercial quality nonmetallic, nonorganic material that will allow a minimum of 1/4 inch of movement at each end of the bar.

Caulking Filler

Caulking filler used for sealing the transverse joint at the bottom and sides of the dowel bar slot shall be a silicone caulk containing a minimum of 50 percent silicone and designated as a concrete sealant. Caulking filler shall conform to the requirements of ASTM Designation: C 834.

Foam Core Insert

The foam core insert shall be closed cell foam faced with poster board material or plastic faced material on each side, or rigid styrofoam material capable of remaining in a vertical position and tight to all edges during the placement of the polyester concrete.

Dowel Bar Support Chairs

Chairs for supporting the dowel bars shall be either completely epoxy-coated steel conforming to the requirements of ASTM Designation: A 884/A 884M or shall be fabricated of commercial quality nonmetallic, nonorganic material. The dowel bar support chairs shall firmly hold the dowel bars centered in the slots during polyester concrete backfill operations. Dowel bar supports shall be designed to hold the bar a minimum of 1/2 inch above the bottom of the slot while the polyester concrete backfill is placed and consolidated.

Polyester Concrete

Before using polyester concrete, a Material Safety Data Sheet shall be submitted for each shipment of and polyester resins. The Contractor shall allow 20 days for sampling and testing by the Engineer of the polyester resins before proposed use. If bulk resin is to be used, the Contractor shall notify the Engineer in writing at least 15 days before the delivery of the bulk resin to the job site. Bulk resin is any resin stored in containers in excess of 55 gallons.

Polyester Concrete shall be designed to have a minimum compressive strength of 1250psi at three and a half hours per California Test Method 551 or ASTM C109 at ambient temperature of no more than 68 F.

Polyester concrete shall consist of polyester resin binder and dry aggregate. The resin shall be an unsaturated isophthalic polyester-styrene co-polymer conforming to the following:

POLYESTER RESIN BINDER		
PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	75 to 300 cP (RVT, No. 1 Spindle, 20 RPM at 77°F)	ASTM D 2196
* Specific Gravity	1.05 to 1.10 at 77°F	ASTM D 1475
Elongation	20 percent, minimum Type I at 0.45 inch/min. Thickness = 0.25 ± 0.03 inch	ASTM D 638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D 618
Tensile Strength	2500 psi, minimum Type I at 0.45 inch/min. Thickness = 0.25 ± 0.03 inch	ASTM D 638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D 618
* Styrene Content	40 percent to 50 percent by weight	ASTM D 2369
Silane Coupler	1.0 percent, minimum (by weight) of polyester styrene resin)	
PCC Saturated Surface-Dry Bond Strength	3.5 MPa, minimum at 24 hours and 21 ± 1°C	California Test 551
* Static Volatile Emission	60 gram per square meter, loss, maximum	South Coast Air Quality Management District, Standard Method
* Test shall be performed before adding initiator.		

The silane coupler shall be an organosilane ester, gammamethacryloxypropyltrimethoxysilane. The promoter shall be compatible with suitable methyl ethyl ketone peroxide and cumene hydroperoxide initiators.

Aggregate for polyester concrete shall conform to the provisions in Section 90-2.02, "Aggregates," of the Standard Specifications and the following combined aggregate gradings:

COMBINED AGGREGATE	
Sieve Size	Percentage Passing
	No. 4 Max.
1/2 inch	100
3/8 inch	100
No. 4	45 - 80
No. 8	35 - 67
No. 16	25 - 50
No. 30	15 - 36
No. 50	5 - 20
No. 100	0 - 9
No. 200	0 - 6

If approved by the Engineer the Contractor may modify gradation requirements or include other than natural sand material as fine aggregate provided that the proposed modifications produce polyester concrete with a resin content measured to be no more than 12 percent by weight of dry aggregate, and, 100% of the combined grading passes the 3/8 inch sieve.

Aggregate retained on the No. 8 sieve shall have a maximum of 45 percent crushed particles when tested in conformance with California Test 205. Fine aggregate shall consist of natural sand.

The polyester resin binder in the concrete shall be approximately 12 percent by weight of the dry aggregate; the exact percentage will be determined by the Engineer.

The average of coarse and fine aggregate absorption shall not exceed one percent as determined by California Tests 206 and 207.

At the time of mixing with the resin, the moisture content of the aggregate, as determined by California Test 226, shall not exceed one half of the aggregate absorption.

Silicone Joint Sealant

Low modulus silicone joint sealant shall be furnished in a one-part silicone formulation. Acid cure sealants shall not be used. The Contractor shall use the same brand of silicone joint sealant throughout the project. The compound shall be compatible with the surface to which it is applied and shall conform to the following requirements:

Specification	Test Method	Requirement
Tensile stress, 150% elongation, 7-day cure at 70° F ±2° F and 45% to 55% R.H. ^e	ASTM D 412 (Die C)	45 psi max.
Flow at 70° F ±2° F	ASTM C 639 ^a	shall not flow from channel
Extrusion Rate at 70° F ±2° F	ASTM C 603 ^b	3 - 9 ounces/min.
Specific Gravity	ASTM D 792 Method A	1.01 to 1.51
Durometer Hardness, at 0° F, Shore A, cured 7 days at 70° F ±2° F	ASTM C 661	10 to 25
Ozone and Ultraviolet Resistance, after 5,000 hours	ASTM C 793	No chalking, cracking or bond loss
Tack free at 70° F ±2° F and 45% to 55% R.H. ^e	ASTM C 679	less than 75 minutes
Elongation, 7 day cure at 70° F ±2° F and 45% to 55% R.H. ^e	ASTM D 412 (Die C)	500 percent min.
Set to Touch, at 70° F ±2° F and 45% to 55% R.H. ^e	ASTM D 1640	less than 75 minutes
Shelf Life, from date of shipment	—	6 months min.
Bond, to concrete mortar-concrete briquets, air cured 7 days at 70° F ±2° F	AASHTO T 132 ^c	50 psi min.
Movement Capability and Adhesion, 100% extension at 0° F after, air cured 7 days at 70° F ±2° F, and followed by 7 days in water at 70° F ±2° F	ASTM C 719 ^d	No adhesive or cohesive failure after 5 cycles

Notes:

- a. ASTM Designation: C 639 Modified (15 percent slope channel A).
- b. ASTM Designation: C 603, through a 1/16-inch opening at 50 psi.
- c. Mold briquets in accordance with AASHTO Designation: T 132, sawed in half and bonded with a 1/16-inch maximum thickness of sealant and tested in accordance with AASHTO Designation: T 132. Briquets shall be dried to constant weight at 212 ±10° F.
- d. Movement Capability and Adhesion: Prepare 12" x 1" x 3" concrete blocks in accordance with ASTM Designation: C 719. A sawed face shall be used for bond surface. Seal 2 inches of block leaving 1/2 inch on each end of specimen unsealed. The depth of sealant shall be 3/8 inch and the width 1/2 inch.
- e. R.H. equals relative humidity.

The silicone joint sealant shall be formulated to cure after application, on grades of up to 15 percent, recessed below the final surface as shown on the plans.

A Certificate of Compliance for the silicone sealant shall be furnished to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate shall also be accompanied with a certified test report of the results of the required tests performed on the sealant material within the previous 12 months prior to proposed use. The Certificate and accompanying test report shall be provided for each lot of silicone joint sealant prior to use on the project.

Foam Backer Rods

Foam backer rods shall be Type 1, conforming to the requirements of ASTM Designation: D 5249. Foam backer rods shall have a diameter prior to placement at least 25 percent greater than the width of the sawcut and shall be expanded, crosslinked, closed-cell polyethylene foam that is compatible with the joint sealant so that no bond or adverse reaction occurs between the rod and sealant. Hot applied sealant that will melt the foam backer rod shall not be used. The Contractor shall submit a manufacturer's data sheet verifying that the foam backer rod is compatible with the sealant to be used.

DOWEL BAR RETROFIT

Dowel bars shall be installed in existing portland cement concrete pavement as shown on the plans and as specified in these special provisions.

Saw Cutting

Two saw cuts shall be made in the pavement to outline the longitudinal sides of each dowel bar slot. The outline of the longitudinal sides of the each dowel bar slot shall be sawn to the depth and length shown on the plans to place the center of the dowel bar at mid-depth in the pavement slab. The saw cuts for the dowel bar slots shall be parallel with each other and to the centerline of the roadway with a maximum tolerance of 1/4 inch. Saws shall be equipped with gang mounted diamond blades to provide the desired saw cut spacing and shall be capable of making 6 saw cuts for 3 dowel bar slots simultaneously. A minimum of 3 dowel bar slots in each wheel path will be required. Skewed joints or cracks may require slots longer than those shown on the plans. No additional compensation will be made for additional length or any component of the dowel bar retrofit beyond the limits shown on the plans. Pickup and removal of debris concrete, water residue, or paste from saw cutting shall be immediate. Pickup and removal shall include the use of a high powered, mobile, vacuum-cleaning machine capable of removing all displaced material with a minimum of dust.

Once the saw cutting operation to outline the longitudinal sides of the dowel bar slots has been completed for any work shift, the concrete remaining between the saw cuts shall be removed and replaced with dowel bar retrofit assembly and concrete in place within 8 days.

Concrete Removal

Concrete removal operations and the equipment used to remove the concrete remaining between the saw cuts shall not damage the pavement to remain. Jack hammers greater than 30-pound class shall not be used. If the concrete removal operations cause damage to the pavement that is to remain, the concrete removal operations shall be discontinued, and shall not resume until the Contractor has taken corrective measures. Damage to the concrete to remain shall be repaired or replaced at the Contractor's expense.

After removal of large concrete pieces by jack hammering, a small hammerhead shall be used to chip off rocks and burrs from the slot bottom to produce a level surface for the dowel bar support chairs to sit.

Operations shall be scheduled so that the concrete removed during a work shift to shape the dowel bar slots, shall be replaced, in that same work shift, with dowel bars and polyester concrete, prior to the time the lane is to be opened to public traffic. In the event the concrete is removed to place the dowel bars and the Contractor is unable to place the dowel bars and polyester concrete and cure the concrete by the time the lane is to be opened to public traffic, the slot shall be filled with a temporary backfill. In no case shall the Contractor leave any slot unfilled prior to opening to traffic.

Temporary Backfill

A sufficient standby quantity of hot mix asphalt shall be provided at the project site for placement of temporary backfill in slots where existing pavement is being dowel bar retrofitted. The temporary backfill shall be maintained and later removed as a first order of work when the Contractor places the dowel bar and polyester concrete and cures the concrete within the specified time limit.

The hot mix asphalt used as temporary backfill shall be produced from commercial quality aggregates and asphalt binder. The grading of the aggregate shall conform to the 3/8-inch grading for Type B hot mix asphalt in Section 39-1.02E, "Aggregate," of the Standard Specifications.

Prior to placing temporary backfill, building paper shall be placed against all surfaces of the dowel bar slot to facilitate subsequent removal of the temporary backfill. Hot mix asphalt for the temporary backfill shall be placed and compacted by methods that will produce a well-compacted backfill with a surface of uniform smoothness, texture, and density. The finished surface of the backfill shall match the elevation of the existing concrete pavement.

The material from the removed temporary backfill shall be disposed of in conformance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. When no longer required, standby backfill material shall be removed and disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13.

Slot Cleaning and Preparation

Exposed surfaces in the dowel bar slot shall be cleaned by sand blasting to remove debris and to clean surfaces such that clean aggregate is exposed. Where sand blasting operations are being performed within 10 feet of a lane occupied by public traffic, the residue, including dust, shall be removed immediately after contact between the sand and the surface being treated. Removal shall be by a vacuum attachment operating concurrently with the sand blasting operation. Debris, excess moisture or residue in the dowel bar slot shall be vacuumed prior to bar installation.

Immediately after vacuuming all debris from the dowel bar slot, the slots shall be cleaned with moisture-free, oil-free compressed air having a minimum pressure of 90 pounds per square inch.

Seal Joints and Cracks in Slot

The Contractor shall seal the existing transverse joint at the bottom and the sides of the dowel bar slot with caulking filler. The surfaces to receive caulking filler shall be clean and dry at the time the caulking filler is placed. Caulking filler shall be placed to a minimum of 1/2 inch beyond the edges of the slot in the existing transverse joint. The portion of any remaining saw cuts in the bottom of the slot which is deeper than the limits shown on the plans for concrete removal and within 6 inches of the existing transverse joint shall be filled with caulking filler. Any cracks exposed within the slot during concrete removal operations shall also be filled with caulking filler.

Placing Dowel Bars in Slots

Dowel bar surfaces shall be cleaned prior to application of the bond breaker. The dowel bars shall be lightly coated with curing compound or factory applied paraffin lubricant prior to placement. The Contractor shall not allow the curing compound, when used, to drip onto the slot walls or bottom. The dowel bar support chair shall provide a minimum of 1/2 inch clearance between the bottom of the dowel bar and the bottom of the slot. The dowel bars shall be placed to the depth shown on the plans, parallel to the traffic lane centerline and the top of the pavement surface, and at the middle of the slot width within a tolerance of 1/4 inch. Dowel bars shall be centered at the transverse joint, such that not less than 8 inches and not more than 10 inches of the dowel bar extend into each adjacent panel. The dowel bar support chairs shall hold the dowel bar securely in place during placement of the polyester concrete.

The foam core insert shall be placed at the middle of the dowel bar to maintain the transverse weakened plane joint. The existing joint sealant, if any, shall be removed to accommodate the 1/4 inch to 1/2 inch thick foam core insert. Two 1/2" x 1/2" tabs to stabilize the foam core insert during backfilling with polyester concrete shall be used. The foam core insert shall be capable of remaining in a vertical position and tight to all edges during the placement of the polyester concrete.

Mixing Polyester Concrete

Batching for placement shall be by continuous mixer employing an auger screw/chute device, approved for use by the Engineer and contingent on a demonstration that the device can consistently produce a satisfactory product. The continuous mixer shall (1) be equipped with a metering device that automatically measures and records the aggregate volumes and the corresponding resin volumes, and (2) have a readout gage, visible to the Engineer at all times. The continuous mixer shall be calibrated prior to any placement. Batch the dry aggregate into a container and weigh to determine a rate of weight per time. The batching period of time shall be no less than 3 minutes. Determine the rate in terms of weight per time of the resin and the initiator by batching them separately for no less than 1 minute. Determine the combined weight of the approved mix for a batch time of 1 minute. Run a trial batch for no less than one-minute and weigh to check against the anticipated weight of an approved mix design.

Placing Polyester Concrete

The Contractor shall fill each dowel bar slot with polyester concrete with the installed dowel bar, expansion caps, support chairs, foam core insert, and caulking filler in place. The concrete shall be vibrated with a small hand held vibrator capable of thoroughly consolidating the concrete material into the slot and around the dowel bars and dowel bar support chairs. All concrete shall be placed while fresh, and before the grout has taken an initial set.

Concrete shall not be retempered. Finishing tools that are cleaned with water shall be dried thoroughly before working the concrete.

The surface temperature of the areas to receive the concrete shall be 40° F or above when is placed. Methods that are proposed to heat surfaces are subject to approval by the Engineer. The contact surfaces to receive the polyester concrete shall be dry.

Finishing Polyester Concrete

The surface of backfilled dowel bar slots shall be rounded 1/8 inch \pm 1/32 inch above the existing concrete surface, which shall be removed during subsequent grinding work. The broadcasting of sand over the filled slot to achieve the 1/8 inch height above the surface of the pavement is allowed. If the concrete has begun to gel, resin may be added to adhere the sand to the surface.

Curing Polyester Concrete

Traffic will not be allowed on polyester concrete until 4 hours after placement.

Grind Pavement

Retrofit pavement lanes shall be ground, conforming to smoothness and finishing provisions in Section 42, "Groove and Grind Pavement," of the Standard Specifications and these special provisions. Pavement grinding shall be preformed prior to sawing and sealing the transverse weakened plane joints within the retrofit lanes.

Dowel bar retrofitted transverse joints shall be ground smooth within 30 days from the initial saw cutting for the dowel bar slots. The width of the pavement lane, longitudinal joint to longitudinal joint, shall be ground. All polyester concrete backfilled into the dowel bar slots shall have a minimum cure time of 12 hours before grinding.

JOINT SEALING

Transverse weakened plane joints within the retrofit lanes, longitudinal joint to longitudinal joint, shall be sealed as specified in this section.

Shape Sealant Reservoir

The transverse joints of the dowel bar retrofit lane shall be saw cut to form a sealant reservoir as shown on the plans.

Cleaning the Joint

The joint shall be cleaned of any dust, dirt, or visible traces of old sealant. Chemical solvents shall not be used to wash the joint. Immediately after sawing, plowing or cutting, or manual removal, any slurry or remaining debris from the removal operations shall be removed. The cleaning operation shall be performed in one direction to minimize contamination of surrounding areas. Surface moisture shall be removed at the sealant reservoir by means of compressed air or moderate hot compressed air or other means approved by the Engineer. Drying procedures that leave a residue or film on the reservoir wall shall not be used. After reservoir drying, the reservoir shall be sandblasted to remove any remaining residue. Sandblasting straight into the reservoir will not be allowed. The sandblast nozzle shall be pointed close to the surface at an angle to clean each reservoir face. A minimum of one pass along each reservoir face shall be made. The reservoir shall then be air blasted to remove sand, dirt, and dust, no more than one hour before placement of sealant. Compressed air used to air blast the reservoir shall not introduce oil into the reservoir. If oil is accidentally introduced into the reservoir, the Contractor shall begin the cleaning process again until the Engineer is satisfied that the reservoir is clean. Compressed air shall be delivered at a minimum rate of 120 cubic feet per minute and develop at least 90 pounds per square inch nozzle pressure. A vacuum sweeper shall be used to remove all debris or contaminants from the surrounding pavement surfaces after air blasting.

Backer Rod Installation

Backer rods shall be installed after joint cleaning. Backer rods shall be installed as shown on the plans. Backer rods shall be installed when the temperature of the portland cement concrete pavement is above the dew point of the air and when the air temperature is 40° F or above. Backer rod shall be installed when the joints to be sealed have been properly patched, cleaned and dried, as determined by the Engineer. Methods of placing backer rods that leave a residue or film on the reservoir walls, shall not be used.

Cleanness Inspection

Before installing sealant, the reservoir sidewalls shall be checked for cleanness by the Engineer. The Engineer shall check for dirt and dust by finger wiping the sidewalls. If any traces of contamination are found, the Contractor shall reclean the joint.

Sealant Installation

The reservoir walls shall be dry before installing the silicone sealant. No sealant shall be installed before it reaches proper manufacturer's recommended installation temperature. The Contractor shall evacuate any cooled sealant and flushing oil that remains from the pumping hoses and nozzle. This evacuated material shall be discarded. Installation of the sealant shall begin only after fresh sealant is ejected from the nozzle at an acceptable temperature.

Joints shall have the sealant recessed below the final finished surface as shown on the plans.

Sealant shall be pumped through a nozzle sized for the width of the sealant reservoir. The nozzle shall fit into the reservoir to allow pumping to the bottom. The nozzle shall be drawn toward the body of the installer versus pushing to reduce the possibility of air voids. Sealant shall not fill the reservoir to the top level of the joint surface.

After pumping the sealant, the Contractor shall draw a tool or backer rod strip over the fresh sealant. The sealant shall be tooled within 10 minutes of installation or before the sealant begins to form a skin as it cures.

After each joint is sealed, all surplus joint sealer on the pavement surface shall be removed. Traffic will not be permitted over the sealed joints until the sealant is track free and set sufficiently to prevent embedment of roadway debris into the sealant.

Any failure of the joint material in either adhesion or cohesion of the material will be cause for rejection of the joint. The finished surface of joint sealant shall conform to the dimensions and allowable tolerances shown on the plans. Rejected joint materials or joint material whose finished surface does not conform to the dimensions shown on the plans, shall be repaired or replaced, at the Contractor's expense, with joint material that conforms to the requirements.

Removed material or material generated by the Contractor's operations 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.

Core Drilling for Dowel Bar Placement Alignment Assurance Testing

Coring, to confirm dowel bar placement, shall be provided by the Contractor. Immediately after coring, the concrete cores shall be identified by the Contractor with a location description and submitted to the Engineer for inspection. The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

After removal of cores, core hole voids in concrete pavement shall be cleaned and filled with polyester concrete as specified under "Materials," of this section.

After placement of polyester concrete in the core hole, the concrete while still plastic shall be troweled smooth to match the pavement surface. The concrete material shall not evidence any depressions or surplus material above the level surface of the pavement.

Water for core drilling operations shall be from a local domestic water supply. Water used for coring shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO₄, nor contain any impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Water from core drilling operations shall not be permitted to fall on public traffic, to flow across shoulders or lanes occupied by public traffic, or to flow into gutters or other drainage facilities.

The Engineer will randomly check dowel bar positioning by coring. Retrofitting will be checked by the Engineer within 4 days by performing one test for every 600 dowel bars placed. One test shall consist of drilling 2 cores, one on each end of a dowel bar to expose both ends and allow measurement for proper alignment. If the dowel bars are located incorrectly or air voids exist surrounding the dowel bars, additional cores will be required to determine the severity. Two additional cores shall be provided, at the Contractor's expense, for every one core that is misaligned or poorly consolidated. The Engineer will select the location for performing any additional core testing.

Dowel bar alignment shall meet the specified tolerances. If at any time dowel bars are found to be installed improperly, the dowel bar retrofitting operations will be suspended and operations shall not begin until the Contractor has demonstrated to the Engineer that the problem which caused the improper dowel bar positioning has been corrected. In addition, all dowel bars identified as not in alignment or damaged, shall be removed and replaced at the Contractor's expense.

Pavement Delineation Repair

Wherever pavement delineation is removed or damaged due to placement of dowel bars, the Contractor shall replace the pavement delineation as needed. The Contractor shall survey the existing traffic striping, pavement markings and pavement markers prior to slot cutting and determine at what locations delineation repairs shall be made. Removed or damaged pavement delineation shall be repaired to its original condition. Pavement delineation repairs shall be made in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings" and Section 85, "Pavement Markers," of the Standard Specifications, and these special provisions, except for payment.

Allowing Traffic over Dowel Bar Retrofitted Pavement

The amount and type of initiator used in polyester concrete during placement shall be sufficient to produce an initial set time of no more than 30 minutes after placement. The initial set time will be determined by using an initial-setting time Gillmore needle in conformance with the requirements in ASTM Designation: C 266. Accelerators may be required to achieve proper set times and shall be used as recommended by the resin supplier. Should initial set time occur after 30 minutes, the 4 hour cure time prior to traffic loads shall be extended an additional 2 minutes for every 1 minute delay of set time after the 30 minute maximum. Should traffic need to be allowed on polyester concrete prior to the cure time requirements, the work will be subject to rejection per the pertinent provisions in the Standard Specifications, Section 5-1.09 and Section 6-1.04. Any initial set times less than 30 minutes shall not be cause in and of itself to reduce the minimum 4 hour set time. The cure time prior to traffic may be reduced, by Contractor request subject to submission of certified laboratory tests, by 15 minute intervals for every 20 minute interval before 3.5 hours that the polyester concrete achieves 1250 psi per ASTM C109 or Calif. Test Method 551 at no more than 68 F ambient.

Final set determination for the polyester concrete shall be in conformance with the requirements of ASTM Designation: C 403.

MEASUREMENT AND PAYMENT

The quantity of dowel bar retrofit to be paid for will be measured as units as determined from actual count in place.

The contract unit price paid for dowel bar retrofit shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing dowel bar retrofit, complete in place, including placing test strip, repairing any damaged or removed pavement delineation, cutting, blast cleaning, caulking, joint filler, concrete backfill, sealing transverse weakened plane joints, and disposal of removed concrete, as shown on the plans, and as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for furnishing, stockpiling, and disposing of standby material for dowel bar slot temporary backfill; and for placing, maintaining, removing, and disposing of temporary backfill shall be considered as included in the contract unit price paid for dowel bar retrofit and no separate payment will be made therefor.

Full compensation for providing the facility, Contractor personnel and all the work involved in arranging for the preconstruction conference shall be considered as included in the contract unit price paid for dowel bar retrofit and no additional compensation will be allowed therefor.

The costs involved in providing an instructor at the 4-hour training class as part of the preconstruction conference will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications except that if payment is made by force account as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications, no markups will be allowed.

BID ITEM LIST
03-441614

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	150771	REMOVE ASPHALT CONCRETE DIKE	LF	60		
42	150801	REMOVE OVERSIDE DRAIN	EA	3		
43	150805	REMOVE CULVERT	EA	37		
44	150820	REMOVE INLET	EA	36		
45	150823	REMOVE DOWNDRAIN	EA	7		
46	150828	REMOVE JUNCTION BOX	EA	1		
47	151272	SALVAGE METAL BEAM GUARD RAILING	LF	4,050		
48	016482	SALVAGE ROADSIDE SIGN (BARRIER MOUNTED)	EA	2		
49	152320	RESET ROADSIDE SIGN	EA	11		
50	152390	RELOCATE ROADSIDE SIGN	EA	3		
51	152394	RELOCATE SIGN STRUCTURE	EA	1		
52	016483	RELOCATE ROADSIDE SIGN (BARRIER MOUNTED)	EA	3		
53	152430	ADJUST INLET	EA	1		
54	152604	MODIFY INLET	EA	1		
55	016484	MODIFY SIGN STRUCTURE (SAFETY CABLE RETROFIT)	EA	1		
56	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	2,800		
57	153210	REMOVE CONCRETE	CY	137		
58	153221	REMOVE CONCRETE BARRIER	LF	2,890		
59	153225	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	166,704		
60	153250	REMOVE SOUND WALL	LF	480		

BID ITEM LIST
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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	155003	CAP INLET	EA	4		
62 (F)	157551	BRIDGE REMOVAL, LOCATION A	LS	LUMP SUM	LUMP SUM	
63 (F)	157552	BRIDGE REMOVAL, LOCATION B	LS	LUMP SUM	LUMP SUM	
64	157561	BRIDGE REMOVAL (PORTION), LOCATION A	LS	LUMP SUM	LUMP SUM	
65	157562	BRIDGE REMOVAL (PORTION), LOCATION B	LS	LUMP SUM	LUMP SUM	
66	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	
67	190101	ROADWAY EXCAVATION	CY	192,000		
68	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
69	190113	ASBESTOS COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
70 (F)	192003	STRUCTURE EXCAVATION (BRIDGE)	CY	2,596		
71 (F)	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	7,002		
72 (F)	192050	STRUCTURE EXCAVATION (TIEBACK WALL)	CY	1,100		
73 (F)	041968	PEA GRAVEL BACKFILL	CY	45		
74 (F)	193003	STRUCTURE BACKFILL (BRIDGE)	CY	1,459		
75 (F)	193006	STRUCTURE BACKFILL (SLURRY CEMENT)	CY	490		
76 (F)	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	6,616		
77 (F)	193026	STRUCTURE BACKFILL (TIEBACK WALL)	CY	83		
78 (F)	016485	PERVIOUS DITCH LINING	SQYD	608		
79	193114	SAND BACKFILL	CY	250		
80	194001	DITCH EXCAVATION	CY	1,560		

BID ITEM LIST**03-441614**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101	394060	DATA CORE	LS	LUMP SUM	LUMP SUM	
102	394074	PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	380		
103	394075	PLACE HOT MIX ASPHALT DIKE (TYPE D)	LF	17,600		
104	394077	PLACE HOT MIX ASPHALT DIKE (TYPE F)	LF	310		
105	394090	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	SQYD	3,500		
106	016486	STAMPED ASPHALT	SQYD	3,340		
107	397005	TACK COAT	TON	43		
108	401108	REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)	CY	4,620		
109	406100	DOWEL BAR RETROFIT	EA	61,200		
110	420201	GRIND EXISTING CONCRETE PAVEMENT	SQYD	394,000		
111	498016	16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	LF	36,000		
112	498022	24" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	LF	1,040		
113	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
114 (F)	500050	TIEBACK ANCHOR	EA	287		
115 (F)	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	601		
116 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	CY	3,025		
117 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	593		
118 (F)	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	CY	7		
119	510087	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	CY	350		
120	510408	CLASS 1 CONCRETE (RETAINING WALL)	CY	3,017		

BID ITEM LIST**03-441614**

121	016487	PRECAST CONCRETE BOX CULVERT	LF	370		
122 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	CY	376		
123	510524	MINOR CONCRETE (SOUND WALL)	CY	1,180		
124	510526	MINOR CONCRETE (BACKFILL)	CY	10		
125	510800	PAVING NOTCH EXTENSION	CY	9		
126 (F)	016488	GRASS PATTERN TEXTURE	SQFT	2,051		
127 (F)	041969	FRACTURED GRANITE TEXTURE	SQFT	34,542		
128 (F)	511064	FRACTURED RIB TEXTURE	SQFT	15,970		
129	511106	DRILL AND BOND DOWEL	LF	90		
130	511118	CLEAN EXPANSION JOINT	LF	1,129		
131	515041	FURNISH POLYESTER CONCRETE OVERLAY	CF	3,886		
132 (F)	515042	PLACE POLYESTER CONCRETE OVERLAY	SQFT	166,704		
133 (F)	518002	SOUND WALL (MASONRY BLOCK)	SQFT	224,434		
134	519081	JOINT SEAL (MR 1/2")	LF	298		
135	519088	JOINT SEAL (MR 1")	LF	14		
136	519091	JOINT SEAL (MR 1 1/2")	LF	305		
137	519100	JOINT SEAL (MR 2")	LF	577		
138 (F)	520102	BAR REINFORCING STEEL (BRIDGE)	LB	1,035,500		
139 (F)	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	471,405		
140 (F)	530100	SHOTCRETE	CY	451		

BID ITEM LIST**03-441614**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	650220	30" REINFORCED CONCRETE PIPE (CLASS II)	LF	1,130		
162	650224	36" REINFORCED CONCRETE PIPE (CLASS II)	LF	170		
163	016492	18" REINFORCED CONCRETE PIPE (CLASS II, RUBBER GASKET JOINT)	LF	9,010		
164	652215	24" REINFORCED CONCRETE PIPE (CLASS II, RUBBER GASKET JOINT)	LF	5,840		
165	016493	14"X23" OVAL SHAPED REINFORCED CONCRETE PIPE (CLASS III, RUBBER GASKET JOINT)	LF	440		
166	665012	12" CORRUGATED STEEL PIPE (.079" THICK)	LF	200		
167	665024	24" CORRUGATED STEEL PIPE (.109" THICK)	LF	1,770		
168	680905	8" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	3,120		
169	681103	3" PLASTIC PIPE (EDGE DRAIN)	LF	360		
170	681108	6" PLASTIC PIPE (EDGE DRAIN)	LF	4,890		
171	681111	CLEANOUT ASSEMBLY (EDGE DRAIN)	EA	22		
172	681113	6" PLASTIC PIPE (EDGE DRAIN OUTLET)	LF	410		
173	681990	FILTER FABRIC	SQYD	8,810		
174	682020	CLASS 1 PERMEABLE MATERIAL	CY	3,020		
175	690112	12" CORRUGATED STEEL PIPE DOWNDRAIN (.079" THICK)	LF	560		
176	692005	12" ENTRANCE TAPER	EA	4		
177	692305	12" ANCHOR ASSEMBLY	EA	24		
178	704196	JACKED 30" WELDED STEEL PIPE (.239" THICK)	LF	200		
179	705019	30" STEEL FLARED END SECTION	EA	2		
180	705204	18" CONCRETE FLARED END SECTION	EA	10		

BID ITEM LIST**03-441614**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
181	705206	24" CONCRETE FLARED END SECTION	EA	10		
182	016494	12" FLAP GATE	EA	1		
183	016495	30" FLAP GATE	EA	1		
184	016496	ROCK BLANKET (TYPE 1)	SQYD	830		
185	016497	ROCK BLANKET (TYPE 2)	SQYD	230		
186	721010	ROCK SLOPE PROTECTION (BACKING NO. 1, METHOD B)	CY	5		
187	721012	ROCK SLOPE PROTECTION (BACKING NO. 3, METHOD B)	CY	300		
188	721509	CONCRETED-ROCK SLOPE PROTECTION (FACING, METHOD A)	CY	66		
189 (F)	721810	SLOPE PAVING (CONCRETE)	CY	77		
190	729010	ROCK SLOPE PROTECTION FABRIC	SQYD	1,600		
191	731504	MINOR CONCRETE (CURB AND GUTTER)	CY	433		
192 (F)	731517	MINOR CONCRETE (GUTTER)	LF	2,513		
193	731521	MINOR CONCRETE (SIDEWALK)	CY	96		
194 (F)	750001	MISCELLANEOUS IRON AND STEEL	LB	56,696		
195	016498	METAL SILHOUETTE	LS	LUMP SUM	LUMP SUM	
196 (F)	750501	MISCELLANEOUS METAL (BRIDGE)	LB	1,640		
197	016499	CHAIN LINK FENCE (TYPE CL-3)	LF	2,780		
198	800360	CHAIN LINK FENCE (TYPE CL-6)	LF	740		
199	800701	WOOD FENCE	LF	730		
200	801901	4' CHAIN LINK GATE (TYPE CL-3)	EA	2		

BID ITEM LIST
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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201	802560	10' CHAIN LINK GATE (TYPE CL-6)	EA	2		
202	820107	DELINEATOR (CLASS 1)	EA	250		
203	820112	MARKER (CULVERT)	EA	83		
204	016500	HIGHWAY POST MARKER	EA	19		
205	016501	MARKER (CULVERT, BARRIER MOUNTED)	EA	77		
206	016502	CONCRETE BARRIER MARKER	EA	69		
207	820151	OBJECT MARKER (TYPE L-1)	EA	10		
208	832001	METAL BEAM GUARD RAILING	LF	1,900		
209	832070	VEGETATION CONTROL (MINOR CONCRETE)	SQYD	1,470		
210 (F)	041970	PICKET FENCE (TYPE 6)	LF	3,252		
211 (F)	041971	PICKET FENCE (TYPE 7)	LF	360		
212	839481	CONCRETE BARRIER (TYPE 50)	LF	1,410		
213 (F)	839521	CABLE RAILING	LF	2,490		
214	839522	REMOVABLE BARRIER POST	EA	6		
215	839541	TRANSITION RAILING (TYPE WB)	EA	7		
216	839576	END CAP (TYPE A)	EA	1		
217	839578	END CAP (TYPE TC)	EA	7		
218	839581	END ANCHOR ASSEMBLY (TYPE SFT)	EA	14		
219	839584	ALTERNATIVE IN-LINE TERMINAL SYSTEM	EA	1		
220	839585	ALTERNATIVE FLARED TERMINAL SYSTEM	EA	16		