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**** WARNING ** WARNING ** WARNING ** WARNING ****
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January 8, 2007

11-Imp-8-R18.9/R19.5
11-280504

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in IMPERIAL COUNTY NEAR OCOTILLO FROM 0.3 KM WEST TO 0.3 KM EAST OF IMPERIAL HIGHWAY UNDERCROSSING.

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, 2007, instead of the original date of January 11, 2007.

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

In the Special Provisions, Section 10-1.16, "ASPHALT CONCRETE," is replaced with the attached.

To Proposal and Contract book holders:

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

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

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

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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

PEDRO ORSO-DELGADO
District Director

Attachments

10-1.16 ASPHALT CONCRETE (Type HS)

High stability asphalt concrete [asphalt concrete (Type HS)] shall conform to the requirements specified for Type A asphalt concrete in Section 39, "Asphalt Concrete," of the Standard Specifications and these special provisions.

The grade of asphalt binder to be mixed with aggregate for Type HS asphalt concrete shall be Grade PG 70-10 conforming to the provisions in Section 92, "Asphalts," of the Standard Specifications.

Aggregate for asphalt concrete (Type HS) shall conform to the following grading requirement:

AGGREGATE GRADATION (12.5 mm)
Percentage Passing

Sieve Sizes	Limits of Proposed Gradation	Operating Range	Contract Compliance
19 mm	-	100	100
12.5 mm	-	86 - 98	81 - 100
9.5 mm	-	64 - 84	58 - 90
4.75 mm	42 - 57	X±5	X±8
2.36 mm	29 - 39	X±5	X±8
600 µm	13 - 19	X±4	X±7
75 µm	-	3 - 7	2.5 - 7.5

Fine aggregate shall not contain more than 10 percent natural (non-manufactured) sand by mass of total aggregate.

The Contractor shall submit a plot of the gradation of the aggregate on a Federal Highway Administration 0.45 power gradation chart. The aggregate gradation shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, and shall be free of any "sand hump." A sand hump shall be defined as a deviation of more than 3 percent upward from a straight line drawn from the origin of a 0.45-power gradation chart to the point at which the gradation line crosses the 4.75 mm sieve line.

Aggregate for asphalt concrete (Type HS) shall conform to the quality requirements in Section 39-2.02, "Aggregate," of the Standard Specifications and the following:

AGGREGATE QUALITY REQUIREMENTS

Quality	Test	Requirement
Percent of Crushed Particles Coarse Aggregate Fine Aggregate (Passing 4.75 mm, Retained on 2.36 mm)	CT 205 ¹	99% Min. 90% Min.
Fine Aggregate Angularity ²	AASHTO T304, Method A	45% Min.
Flat and Elongated Particles	ASTM D 4791	10% Max. @ 3:1
Los Angeles Rattler Loss at 500 Rev.	CT 211	40% Max.
Cleanness Value ³	CT 227	57 Min.
Plasticity Index	CT 204	Non Plastic

Notes:

1. The last sentence of the third paragraph in Section D, "Test Procedure," of CT 205 is modified to read: "Any particle having two or more fresh mechanically fractured faces shall be considered a crushed particle."
2. If the fine fraction is 100% crushed, the use of crushed material shall be monitored during the production process. If the fine fraction is a combination of crushed and natural materials, the fine aggregate angularity shall be monitored during the production process.
3. An aggregate sampling device shall be provided which will provide a 25 kg sample of each coarse aggregate. The samples of each separately sized aggregate, except for the fine material, used for asphalt concrete (Type HS) shall have a minimum Cleanness Value of 57 as determined by California Test 227, modified as follows:

- A. Tests will be performed on the material retained on the 2.36 mm sieve from each sample of separately sized aggregate and will not be a combined or averaged result.
- B. Each test specimen will be prepared by hand shaking for 30 seconds, a single loading of the entire sample on a 305 mm diameter, 4.75 mm sieve, nested on top of a 305 mm diameter, 2.36 mm sieve.
- C. Where a coarse aggregate sample contains material which will pass the maximum size specified and be retained on a 9.5 mm sieve, the test specimen mass and volume of wash water specified for 25 mm x 4.75 mm aggregate size will be used.
- D. Samples of separately sized aggregate will be obtained from hopper discharge or feed belt prior to treatment with lime, if the aggregate is lime treated.
The Cleanness Value of the test sample from each of the separately sized aggregates will be separately computed and reported.

The asphalt concrete (Type HS) mixture, composed of the proposed aggregate blend and the proposed asphalt binder content as determined by California Test 367, shall conform to the following requirements:

ASPHALT CONCRETE (TYPE HS) MIXTURE REQUIREMENTS

Design Parameters	Test Method	Requirement
Hveem Stabilometer Value	CT 366 ³	37 Min. ¹ 35 Min. ²
Percent Air Voids (Determined at Mix Design only)	CT 367 ⁴	4 - 6
Voids in Mineral Aggregate	Procedure located at http://www.dot.ca.gov/hq/esc/translab/fpm.htm	15% Min.
Voids Filled with Asphalt	Procedure located at http://www.dot.ca.gov/hq/esc/translab/fpm.htm	65% - 75%
Dust Proportion	Procedure located at http://www.dot.ca.gov/hq/esc/translab/fpm.htm	0.6 - 1.2
<p>Notes:</p> <ol style="list-style-type: none"> Follow current procedure — 150 tamps at 3400 kPa tamping pressure and 110°C compaction temperature; cool specimens to 60°C; apply 56 kN leveling load; and perform stabilometer test at 60°C. Modify CT 366 — 150 tamps at 3400 kPa tamping pressure and 110°C compaction temperature; cool specimens to 60°C; <u>apply additional 500 tamps at 3400 kPa</u>; apply 56 kN leveling load; and perform stabilometer test at 60°C. A set of 3 briquettes must be prepared and tested separately for each stability determination. If the range of stability for the 3 briquettes is more than 12 points, the results shall be reported and new briquettes shall be fabricated and tested. The reported value shall be the average of 3 tests from a single split sample. Modify CT 367, paragraph C5, to "most nearly 5%" and use CT 309 for determination of maximum theoretical specific gravity in accordance with the "Determination of Theoretical Maximum Specific Gravity of Mixtures with Different Asphalt Contents" procedure located at http://www.dot.ca.gov/hq/esc/translab/fpm.htm 		

In addition to the mixture requirements above, the combined aggregates shall conform to the following quality requirement when mixed with the grade of asphalt binder to be used on the project in the amount of asphalt determined to be optimum by California Test 367:

Quality Requirement		
Test	California Test	Requirement
Surface Abrasion	360	Loss not to exceed 0.40 grams/cm ²

The Contractor shall submit a Quality Control Plan to the Engineer at least 5 days prior to the start of asphalt concrete (Type HS) production. The Quality Control Plan shall describe the procedures that will be used to control the quality of asphalt concrete (Type HS) entering the work and of the work performed. The Contractor shall perform testing of the asphalt concrete (Type HS) at each location to control quality. The Contractor shall include in the Quality Control Plan procedures for quality control testing of aggregate gradation, sand equivalent, cleanness value, asphalt content, compaction and stability. Test results shall be delivered to the Engineer within 3 days of testing. Asphalt concrete (Type HS) production and placement shall not begin until the Engineer has approved the Quality Control Plan.

On the first day of production and within the first location, the Contractor shall demonstrate that the production and placement of asphalt concrete (Type HS) conforms to the requirements of these special provisions. The Contractor shall produce and place only the quantity of asphalt concrete (Type HS) required to complete this single location or up to 500 tonnes as determined by the Engineer. The asphalt concrete (Type HS) shall be produced and compacted as outlined in the Contractor's Quality Control Plan. The asphalt concrete (Type HS) placed in this first location shall be compacted to between 91 percent and 97 percent of maximum theoretical density in conformance with California Test 375 and the provisions of these special provisions. Asphalt concrete (Type HS) with a maximum theoretical density less than 91 percent or greater than 97 percent shall be removed. In lieu of removal, asphalt concrete (Type HS) with a maximum theoretical density less than 91 percent but greater than 89 percent may be left in place, and the Contractor shall be paid 50 percent of the contact price for the quantity involved. Asphalt concrete (Type HS) in the first location will be rejected when the percent of maximum theoretical density is below 89 percent. Production and placement shall not begin until the Contractor has demonstrated the ability to achieve between 91 percent and 97 percent of maximum theoretical density in conformance with the provisions of these special provisions. Mitigation measures shall be at the Contractor's expense.

The asphalt content of the asphalt mixture will be determined in conformance with the requirements in California Test 379 or in conformance with the requirements in California Test 382. The bitumen ratio (kilograms of asphalt per 100 kg of dry aggregate) shall not vary by more than 0.30 percent above or 0.30 percent below the amount designated by the Engineer.

The asphalt concrete (Type HS) shall be spread and compacted in the number of layers of the thicknesses indicated in the following table:

Total Thickness shown on plans (mm)	Number of Layers	Top Layer Thickness (mm)		Next Lower Layer Thickness (mm)		All Other Lower Layer Thickness (mm)	
		Min.	Max.	Min.	Max.	Min.	Max.
45 to 75	1	--	--	--	--	--	--
100 or more	--	50	75	50	75	50	75

Paint binder (tack coat) shall be applied to existing surfaces to be surfaced and between layers of asphalt concrete (Type HS), except when eliminated by the Engineer.

Paint binder (tack coat) shall be, at the option of the Contractor, either slow-setting asphaltic emulsion, rapid-setting asphaltic emulsion or paving asphalt. Slow-setting asphaltic emulsion and rapid-setting asphaltic emulsion shall conform to the provisions in Section 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," and the provisions in Section 94, "Asphaltic Emulsions," of the Standard Specifications. When paving asphalt is used for paint binder, the grade will be determined by the Engineer. Paving asphalt shall conform to the provisions in Section 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," Section 92, "Asphalts," of the Standard Specifications and these special provisions.

Paint binder (tack coat) shall be applied in the liter per square meter range limits specified for the surfaces to receive asphalt concrete (Type HS) in the tables below. The exact application rate within the range will be determined by the Engineer.

Type of surface to receive paint binder (tack coat)	Slow-Setting Asphaltic Emulsion L/m ² (Note 1)	Rapid-Setting Asphaltic Emulsion L/m ² (Note 2)
Dense, compact surfaces and between layers	0.20 – 0.35	0.10 – 0.20
Open textured, or dry, aged surfaces	0.35 – 0.90	0.20 – 0.40

Note 1: Slow-setting asphaltic emulsion is asphaltic emulsion diluted with additional water. Water shall be added and mixed with the asphaltic emulsion (containing up to 43 percent water) so the resulting mixture contains one part asphaltic emulsion and not more than one part added water. The water shall be added by the emulsion producer or at a facility that has the capability to mix or agitate the combined blend.

Note 2: Undiluted rapid-setting asphaltic emulsion.

Type of surface to receive paint binder (tack coat)	Paving Asphalt L/m ²
Dense, compact surfaces and between layers	0.05 – 0.10
Open textured, or dry, aged surfaces	0.10 – 0.25

When asphaltic emulsion is used as paint binder (tack coat), asphalt concrete (Type HS) shall not be placed until the applied asphaltic emulsion has completely changed color from brown to black.

If the Contractor selects the batch mixing method, asphalt concrete shall be produced by the automatic batch mixing method in conformance with the provisions in Section 39-3.03A(2), "Automatic Proportioning," of the Standard Specifications.

In addition to the provisions in Section 39-5.01, "Spreading Equipment," of the Standard Specifications, asphalt paving equipment shall be equipped with automatic screed controls and a sensing device or devices.

When placing asphalt concrete to the lines and grades established by the Engineer, the automatic controls shall control the longitudinal grade and transverse slope of the screed. Grade and slope references shall be furnished, installed, and maintained by the Contractor. Should the Contractor elect to use a ski device, the minimum length of the ski device shall be 9 m. The ski device shall be a rigid one piece unit and the entire length shall be utilized in activating the sensor.

When placing the initial mat of asphalt concrete on existing pavement, the end of the screed nearest the centerline shall be controlled by a sensor activated by a ski device not less than 9 m long. The end of the screed farthest from centerline shall be controlled by a sensor activated by a similar ski device or by an automatic transverse slope device set to reproduce the cross slope designated by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 3-mm tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same way it was controlled when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the provisions, including straightedge tolerance, of Section 39-6.03, "Compacting," of the Standard Specifications, the paving operations shall be discontinued and the Contractor shall modify the equipment or methods, or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during a day's work, the Contractor may manually control the spreading equipment for the remainder of that day. However, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the provisions in this section before starting another day's work.

The area to which paint binder has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction.

A vertical longitudinal joint of more than 45 mm will not be allowed at any time between adjacent lanes open to public traffic.

The Contractor shall schedule paving operations so that each layer of asphalt concrete is placed on contiguous lanes of the traveled way during each work shift. At the end of each work shift, the distance between the ends of the layers of asphalt concrete on adjacent lanes shall not be greater than 3 m or less than 1.5 m. Additional asphalt concrete shall be placed along the transverse edge at the end of each lane and along the exposed longitudinal edges between adjacent lanes, hand raked, and compacted to form temporary conforms. Kraft paper, or other approved bond breaker, may be placed under the conform tapers to facilitate the removal of the taper when paving operations resume.

Half-width surfacing operations shall be performed in a manner that, at the end of each day's work, the distance between the ends of adjacent surfaced lanes shall not be greater than can be completed in the following day of normal surfacing operations.

Shoulders or median borders adjacent to a lane being paved shall be surfaced prior to opening the lane to public traffic.

The aggregate from each separate bin used for asphalt concrete, Type HS, except for the bin containing the fine material, shall have a Cleanness Value of 57 minimum for contract compliance and a value of 65 minimum for operating range as determined by California Test 227, modified as follows:

- A. Tests will be performed on the material retained on the 2.36-mm sieve from each bin and will not be a combined or averaged result.
- B. Each test specimen will be prepared by hand shaking for 30 seconds, a single loading of the entire sample on a 305-mm diameter, 4.75-mm sieve, nested on top of a 305-mm diameter, 2.36-mm sieve.
- C. Where a coarse aggregate bin contains material which will pass the maximum size specified and is retained on a 9.5-mm sieve, the test specimen mass and volume of wash water specified for 25-mm x 4.75-mm aggregate size will be used.
- D. Samples will be obtained from the weigh box area during or immediately after discharge from each bin of the batching plant or immediately prior to mixing with asphalt in the case of continuous mixers.
- E. The Cleanness Value of the test sample from each of the bins will be separately computed and reported.

At drier-drum and continuous plants with cold feed control, Cleanness Value test samples will be obtained from the discharge of each coarse aggregate storage. An aggregate sampling device shall be provided which will provide a 25-kg sample of each coarse aggregate.

If the results of the Cleanness Value tests do not meet the requirements specified for operating range but meet the contract compliance requirements, placement of the material may be continued for the remainder of that day. However, another day's work may not be started until tests, or other information, indicate to the satisfaction of the Engineer that the next material to be used in the work will comply with the requirements specified for operating range.

If the results of the Cleanness Value tests do not meet the requirements specified for contract compliance, the material which is represented by these tests shall be removed. However, if requested by the Contractor and approved by the Engineer, material having a Cleanness Value of 48 or greater may remain in place and accepted on the basis of a reduced payment for material left in place.

Asphalt concrete that is accepted on the basis of reduced payment will be paid for at the contract prices for the items of asphalt concrete involved multiplied by the following factors:

Test Value	Pay Factor
56	0.90
55	0.85
54	0.80
53	0.75
52	0.70
51	0.65
50	0.60
49	0.55
48	0.50

If asphalt concrete is accepted on the basis of reduced payment due to a Cleanness Value of 48 to 56 and also accepted on the basis of aggregate grading or Sand Equivalent tests not meeting the contract compliance requirements, the reduced payment for Cleanness Value shall apply and payment by the Contractor to the State for asphalt concrete not meeting the contract compliance requirements for aggregate grading or Sand Equivalent shall not apply.