



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

January 11, 2010

SUBJECT: FAI Route 290 (I-290/Eisenhower Expressway)  
Project ACIM-290-4 (114) 084  
Section (3031.1, ETC., 3838)RS-5  
Cook County  
Contract No. 60G52  
Item No. 120, January 15, 2010 Letting  
Addendum B

## NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised pages 93 - 98 to the Special Provisions.
2. Revised Sheets 1 & 2 of the Plans.
3. Added sheet 96A to the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Charles Ingersoll, Chief  
Bureau of Design and Environment

A handwritten signature in cursive script, reading "Ted B. Walschleger P.E." with a small "P.E." to the right.

By: Ted B. Walschleger, P. E.  
Engineer of Project Management

cc: Diane O'Keefe, Region 1, District 1; Mike Renner; R. E. Anderson;  
Estimates

TBW:MS:jc

- (6) Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
  - (7) Residual asphalt binder in the RAP material (per size) as a percent of the total mix to the nearest 0.1 unit.
  - (8) Aggregate and RAP moisture compensators in percent as set on the control panel (Required when accumulated or individual aggregate and RAP are printed in wet condition).
- (b) Batch Plants
- (1) Date, month, year, and time to the nearest minute for each print.
  - (2) HMA mix number assigned by the Department.
  - (3) Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram)
  - (4) Mineral filler weight to the nearest pound (kilogram).
  - (5) Individual RAP Aggregate weight to the nearest pound (kilogram).
  - (6) Virgin asphalt binder weight to the nearest pound (kilogram)
  - (7) Residual asphalt binder of each RAP size material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

**1031.08 RAP in Aggregate Surface Course and Aggregate Shoulders.** The use of RAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Other". The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

**HOT MIX ASPHALT PAY FOR PERFORMANCE USING PERCENT WITHIN LIMITS (D-1)**

Effective: April 4, 2008

Revised: January 1, 2010

Description: This special provision describes the procedures used for production, placement and payment for hot-mix asphalt (HMA). This special provision applies to all HMA surface course mixtures, excluding Stone Matrix Asphalt (SMA), that individually have a minimum quantity of 8,000 tons (7,260 metric tons) and are placed at a minimum nominal thickness equal to or greater than three times the nominal maximum aggregate size.

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This work shall be according to the Standard Specifications for Road and Bridge Construction except as specified herein.

- Delete Articles:
- 406.06(b), 2<sup>nd</sup> Paragraph (Temperature requirements)
  - 406.06 (e) 3<sup>rd</sup> Paragraph (Pavers speed requirements)
  - 406.07 (Compaction)
  - 1030.05(a) (4, 5, 7, 8, 9, & 10) (QC/QA Documents)
  - 1030.05(d) (2) a. (Plant Tests)
  - 1030.05(d) (2) b. (Dust-to-Asphalt and Moisture Content)
  - 1030.05(d) (2) d. (Small Tonnage)
  - 1030.05(d) (2) f. (HMA Sampling)
  - 1030.05(d) (3) (Required Field Tests)
  - 1030.05(d) (4) (Control Limits)
  - 1030.05(d) (5) (Control Charts)
  - 1030.05(d) (6) (Corrective Action for Required Plant Tests)
  - 1030.05(d) (7) (Corrective Action for Field Tests (Density))
  - 1030.05(e) (Quality Assurance by the Engineer)
  - 1030.05(f) (Acceptance by the Engineer)
  - 1030.06(a) paragraphs 3, 7, 8, & 9:
    - 3 (Before start-up...)
    - 7 (After an acceptable...)
    - 8 (If a mixture...)
    - 9 (A nuclear/core...)

The following documents have been added or modified to replace the equivalent documents in the current Manual of Test Procedures for Materials.

Existing	Replacement
ERS - HMA QC/QA Initial Daily Plant & Random Samples; Appendix E2	PFP Hot-Mix Asphalt Random Plant Samples or PFP Hot-Mix Asphalt Random Behind Paver Sampling
ERS - Determination of Random Density Test Site Locations; Appendix E3	PFP Random Density Procedure
ERS - Quality Level Analysis; Appendix E1	PFP Quality Level Analysis

Definitions:

- A. Quality Control (QC): All production and construction activities by the Contractor required to achieve the required level of quality.
- B. Quality Assurance (QA): All monitoring and testing activities by the Engineer required to assess product quality, level of payment, and acceptability of the product.
- C. Percent Within Limits (PWL): The percentage of material within the quality limits for a given quality characteristic.
- D. Quality Characteristic: The characteristics that are evaluated by the Department for payment using PWL. The quality characteristics for this project are field Voids in the Mineral Aggregate (VMA), voids, and density. Field VMA will be calculated using the combined Aggregates Bulk Specific Gravity ( $G_{sb}$ ) from the mix design

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- E. Quality Level Analysis (QLA): QLA is a statistical procedure for estimating the amount of product within specification limits.
- F. Sublot: A subplot for field VMA, voids, and density will be 1000 tons, or adjusted to achieve a minimum of 10 tests. If a subplot consists of less than 200 tons , it shall be combined with the previous subplot.
- G. Lot: A lot consists of 10 sublots. If seven or less sublots remain at the end of production of a mixture, the test results for these sublots will be combined with the previous lot for evaluation of percent within limits and pay factors.
- H. Density Testing Interval: The interval for density testing will be 0.2 mile for lift thickness equal to or less than 3.0 inches and 0.1 mile for lift thickness greater than 3.0 inches. If a density testing interval is less than 200 ft, it will be combined with the previous test interval.
- I. Density Test: A density test consists of a core taken at a random longitudinal and transverse offset. The HMA maximum theoretical gravity ( $G_{mm}$ ) will be based on the running average of four including the current day of production. Initial  $G_{mm}$  will be based on the average of the first four test results. The random transverse offset excludes the outer 1.0 ft from an unconfined edge. For confined edges, the random transverse offset excludes a distance from the outer edge equal to the lift thickness or a minimum of 2.0 inches.

#### Pre-production Meeting:

The Engineer will schedule a pre-production meeting a minimum of seven calendar days prior to the start of production. The HMA QC Plan, test frequencies, random test locations, and responsibilities of all parties involved in testing and determining the PWL will be addressed. Personnel attending the meetings will include the following:

- Resident Engineer
- District Mixture Control Representative
- QC Manager
- Contractor Paving Superintendent
- Any consultant involved in any part of the HMA sampling or testing on this project

#### Quality Control (QC) by the Contractor:

The Contractor's quality control plan shall include the schedule of testing for both quality characteristics and non-quality characteristics required to control the product such as binder content and mixture gradation. The schedule shall include sample location. The minimum test frequency shall not be less than outlined in the Minimum Quality Control Sampling and Testing Requirements table below.

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**Minimum Quality Control Sampling and Testing Requirements**

Quality Characteristic	Minimum Test Frequency	Sampling Location
Mixture Gradation	1/day	per QC Plan
Binder Content		
$G_{mm}$		
$G_{mb}$		
Density	per QC plan	per QC Plan

Revise Article 1030.05(d) (4) to read:

“(4) The QC Manager shall notify the Engineer when the following individual corrective action limits are exceeded and describe corrective action.

**Corrective Action Limits**

Gradation:	High & Low ESAL	SMA
½ inch	± 6 %	± 6 %
¾ inch		± 4 %
No. 4	± 5 %	± 5 %
No. 8	± 5 %	± 4 %
No. 30	± 4 %	± 4 %
No. 200	± 1.5 %	± 1.5 %
Voids	± 1.2 %	± 1.2 %
Field VMA <sup>1/</sup>	- 0.7 % or + 2.0 %	- 0.7 % or + 2.0 %
HMA Binder Content	± 0.3 %	± 0.2 %
Dust/AC Ratio	Min. 0.6 - Max 1.2	--
HMA Moisture Content	Max 0.3%	Max 0.3%”

Notes: 1/ based on minimum required VMA from mix design

Initial Production Testing: The Contractor and Engineer’s laboratory shall complete all tests and report all results to the Engineer within two working days of sampling. PFP will begin after an acceptable test strip, if one is used.

Quality Assurance (QA) by the Engineer:

The Engineer will test each subplot for field VMA, voids, dust/ac ratio and density to determine payment for each lot. A subplot shall begin once an acceptable test-strip has been completed and the AJMF has been determined. If the test strip is waived, a subplot shall begin with the start of production. All Department testing will be performed in a qualified laboratory by personnel who have successfully completed the Department HMA Level I training.

Voids, field VMA, and Dust/AC ratio: The mixture subplot size is 1000 tons. The Engineer will determine the random tonnage and the Contractor shall be responsible for obtaining the sample according to either the “PFP Hot-Mix Asphalt Random Plant Samples” or “PFP Hot-Mix Asphalt Random Behind Paver Sampling” procedure.

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Density: The Engineer will identify the random locations for each density interval within each subplot. The Contractor shall be responsible for obtaining the cores according to the “PFP Random Density Procedure”. The locations will be identified after final rolling and cores shall be obtained under the supervision of the Engineer.

Test Results: The Department test results for the first subplot of every lot will be available to the Contractor five working days from the time the subplot has been delivered to a Department’s Testing Facility or a location designated by the Engineer. Test results for the completed lot will be available to the Contractor 14 working days from the time the last subplot has been delivered to a Department testing facility or a location designated by the Engineer.

The Engineer will maintain a complete record of all Department test results. Copies will be furnished upon request. The records will contain, as a minimum, the originals of all Department test results and raw data, random numbers used and resulting calculations for sampling locations, and quality level analysis calculations.

Dispute Resolution:

Dispute resolution testing will only be permitted when the difference between the Contractor and Department test results exceed the precision limits listed below:

Test Parameter	Limits of Precision
Voids	1.0%
VMA	1.5
No. 200 (75 µm)	1.5 %
Binder Content	0.2%
Core Density	1.0%

If dispute resolution is necessary, the Contractor shall submit a request in writing within four working days of receipt of the results of the quality index analysis for the lot. The request for dispute resolution must include the Contractor’s quality control and split sample test results. The Engineer will document receipt of the request. The Bureau of Materials and Physical Research (BMPR) laboratory will be used for dispute resolution testing.

For density disputes, the Engineer will locate and mark the dispute resolution core locations by adding 1.0 ft longitudinally to the location of the original cores tested using the same transverse offset. The Engineer will witness the coring process and take possession of the cores and submit them to the BMPR laboratory for testing.

If three or more consecutive mix sublots are contested, corresponding density results will be recalculated with the new  $G_{mm}$ .

All dispute resolution results will replace original quality assurance test results for pay factor recalculation. The overall lot pay factor and the lot pay adjustment for the lot under dispute resolution will be recalculated.

If the recalculated overall lot pay factor is less than or equal to the original overall lot pay factor, laboratory costs listed below will be borne by the Contractor.

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Test	Cost
Mix Testing	\$700.00 / subplot
Core Density	\$100.00 / core

Acceptance by the Engineer and Basis of Payment:

The Engineer may cease production and reject material produced under the following circumstances:

- If the Contractor is not following the approved quality control plan
- If PWL for any quality characteristic is below 50% for any lot
- If visible pavement distress occurs such as segregation or flushing
- If any test exceeds the acceptable limits listed below:

Parameter	Acceptable Range
Field VMA	-1.0 -+3.0%
Voids	2.0 – 6.0 <sup>1/</sup>
Density: IL-19.0, IL-25.0, IL-9.5, IL-12.5 IL-4.75, SMA	90.0 – 98.0% 92.0 – 98.0%
Dust / AC Ratio	0.4 – 1.5

1/ The acceptable range for SMA mixtures shall be 2.0% - 5.0%

Payment will be based on the calculation of the quantity within specification limits for each quality characteristic according to the “PFP Quality Level Analysis” document. Payment will be calculated for each lot. Final payment for the project will be weighted on quantity for each lot. For full depth pavement, payment will be evaluated on a lift basis and combined equally. Pay items will be as follows: XXX PFP Incentive, PFP Disincentive, PFP Resolutions Testing.

Dust / AC Ratio

In addition to the PWL on VMA, voids, and density, a monetary deduction will be made using the pay adjustment table below for dust/AC ratios that deviate from the 0.6 to 1.2 range.

Range	Deduct / subplot
$0.6 \leq X \leq 1.2$	\$0
$0.5 \leq X < 0.6$ or $1.2 < X \leq 1.4$	\$1000
$0.4 \leq X < 0.5$ or $1.4 < X \leq 1.6$	\$3000
$X < 0.4$ or $X > 1.6$	Shall be removed and replaced

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