



Wisconsin Department of Transportation

June 28, 2018

Division of Transportation Systems Development

Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

NOTICE TO ALL CONTRACTORS:

**Proposal #03: 1706-02-72, WISC 2018 301
Monroe – Brodhead
STH 81 to Hiltbrand Road EB & WB
STH 11
Green County**

Letting of July 10, 2018

This is Addendum No. 03, which provides for the following:

Special Provisions:

Added Special Provisions	
Article No.	Description
34	Optimized Aggregate Gradation Incentive, Item 715.0710
35	Flexural Strength for Concrete Mix Design

Schedule of Items:

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
450.4000	HMA Cold Weather Paving	TON	0	3,000	3,000
715.0710	Optimized Aggregate Gradation Incentive, Item 715.0710	DOL	0	181,000	181,000

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

ADDENDUM NO. 3

1706-02-72

July 3, 2018

Special Provisions

34. Flexural Strength for Concrete Mix Design.

This special provision describes optional testing requirements for flexural strength during the mix design process. Conform to standard spec part 7 as modified in this special provision.

Add the following to standard spec table 701-2:

TEST	TEST STANDARD
Flexural Strength of Concrete	AASHTO T97

Replace 715.2.3.1(1) with the following:

- (1) Provide both compressive and flexural strength information to demonstrate the strength of the proposed mix design. Use either laboratory strength data for new mixes or field strength data for established mixes as follows:

1. Use at least 5 pairs of cylinders for compressive strength. Demonstrate that the 28-day compressive strength will equal or exceed the 85 percent within limits criterion specified in 715.5.2.
2. Use at least 5 pairs of beams for flexural strength. Demonstrate that the 28-day flexural strength will equal or exceed 650 psi.

stp-715-010 (20170615)

35. Optimized Aggregate Gradation Incentive, Item 715.0710.

Description

This special provision describes optional contractor optimized aggregate gradation, optional optimized mixture designs, and associated additional requirements for class 1 concrete used in concrete pavements. Conform to standard specification part 7 and as follows:

Optimized Aggregate Gradation

A Job Mix Formula (JMF) contains all of the following:

Proportions for each aggregate fraction conforming to table 1.

Individual gradations for each aggregate fraction.

Composite gradation of the combined aggregates including working ranges on each sieve in accordance with table 2.

Submit the target JMF and aggregate production gradation test results to the engineer for review 10 business days before initial concrete placement.

TABLE 1 TARANTULA CURVE GRADATION BAND

SIEVE SIZES	PERCENT RETAINED
2 in.	0
1 1/2 in.	≤5
1 in.	≤16
3/4 in.	≤20
1/2 in.	4-20
3/8 in.	4-20
No. 4	4-20
No. 8 ^[1]	≤12
No. 16 ^[1]	≤12
No. 30 ^{[1][2]}	4-20
No. 50 ^[2]	4-20
No. 100 ^[2]	≤10
No. 200 ^[2]	≤2.3

^[1] Minimum of 15% retained on the sum of the #8, #16, and #30 sieves.

^[2] Conform to 24-34% retained of fine sand on the #30-200 sieves.

TABLE 2 JMF WORKING RANGE

SIEVE SIZES	WORKING RANGE ^[1] (PERCENT)
2 in.	+/- 5
1 1/2 in.	+/- 5
1 in.	+/- 5
3/4 in.	+/- 5
1/2 in.	+/- 5
3/8 in.	+/- 5
No. 4	+/- 5
No. 8	+/- 4
No. 16	+/- 4
No. 30	+/- 4
No. 50	+/- 3
No. 100	+/- 2
No. 200	≤ 1.6

^[1] Working range limits of composite gradation based on moving average of 4 tests.

Test each component aggregate once per 1,500 cubic yards during concrete production. Take samples by one of the following sampling methods:

1. At the belt leading to the weigh hopper.
2. Working face of the stock piles at the concrete plant if approved by the engineer.

The department will take independent QV samples using the same sampling method the contractor uses for QC sampling. QV samples may be taken by the contractor's QC personnel if witnessed by the department's QV personnel. The department will split each QV sample and retain half for all dispute resolutions. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

If, during concrete production, the moving average of four for any sieve fall outside the allowable JMF working range do the following:

1. Notify the engineer of the test results within 1 business day from the time of sampling.
2. Make immediate adjustments to the JMF, within the limits specified in Table 3;
3. Review JMF adjustments with the engineer. Both the contractor and engineer will sign the adjusted JMF if the adjustments comply with Table 3.
4. If the moving average of four falls outside the adjusted allowable working range, stop production and provide a new mix design including JMF to the engineer.

TABLE 3 ALLOWABLE JMF ADJUSTMENTS

SIEVE SIZES	ALLOWABLE ADJUSTMENT (PERCENT)
>= No. 4	+/- 5
No. 8 – No. 30	+/- 4
No. 50	+/- 3
No. 100	+/- 2

Dispute Resolution

The department will resolve disputes as specified in standard spec 106.3.4.3.5 using QV split samples.

Sublot and Lot Size

A sublot consists of up to 1,500 cubic yards. A lot consists of two sublots.

Optimized Concrete Mixtures

The contractor may use a reduced cementitious content for concrete pavement placed if the contractor does the following:

1. Use an optimized aggregate gradation as defined in this special provision.
2. Conform to the additional testing requirements for flexural strength as specified in the contract special provisions.
3. Submit aggregate gradation result records no more than 2 years old when developing the mix design.
4. Determine the volume of voids in the optimized aggregates using ASTM C29.
5. Download and follow the instructions tab of the Optimized Gradation and Mix Design Spreadsheet located at: <http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/qmp/default.aspx>
6. Design an appropriate paste content based upon the Performance-based PCC Mix Design Guide located at: <http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/qmp/default.aspx>
7. Provide a minimum V_{paste}/V_{voids} of 1.25. (Paste/Void ratio equals the volume of paste divided by the volume of voids.).
8. Evaluate workability of trial batches by following section 6.8 of AASHTO Draft Performance Engineered Concrete Pavement Mixtures Specifications located at: <http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/qmp/default.aspx>
9. Submit trial batch workability results when submitting the mix design.
10. Submit the CP Tech center computer spreadsheet concrete mix design to the engineer for review at least 3 business days before producing concrete.

11. Provide a minimum cement content of 520 pounds per cubic yard, except if using type I, II, or III cement in a mix where the geologic composition of the coarse aggregate is primarily igneous or metamorphic materials, provide a minimum cement content of 660 pounds per cubic yard.
12. The contractor may use class C fly ash or grade 100 or 120 slag as a partial replacement for cement. For binary mixes use up to 30% fly ash or slag. For ternary mixes use up to 30% fly ash plus slag in combination. Replacement values are in percent by weight of the total cementitious material in the mix.
13. See CMM 8-70.2.2.3 for additional guidance.

Measurement

The department will measure Optimized Aggregate Gradation Incentive by the dollar, for each combined averaged lot of QC test results meeting Table 1.

Payment

The department will pay incentive of 3 percent of the contract unit price for concrete pavement under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
715.0710	Optimized Aggregate Gradation Incentive	DOL
stp-715-005 (20170615)		

Schedule of Items

Attached, dated July 3, 2018, are the revised Schedule of Items Page 11.

END OF ADDENDUM



Proposal Schedule of Items

Proposal ID: 20180710003 Project(s): 1706-02-72

Federal ID(s): WISC 2018301

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0316	SPV.0105 Special 03. Remove Temporary Crossover, F and G	LS	LUMP SUM	_____.
0318	SPV.0105 Special 04. Remove Temporary crossover, H and I	LS	LUMP SUM	_____.
0320	SPV.0105 Special 05. Remove Temporary Crossover, J and K	LS	LUMP SUM	_____.
0322	SPV.0165 Special 01. Fiber Wrap Girder Reinforcing	576.000 SF	_____.	_____.
0324	SPV.0195 Special 01. Select Crushed Surface	20.000 TON	_____.	_____.
0326	450.4000 HMA Cold Weather Paving	3,000.000 TON	_____.	_____.
0328	715.0710 Optimized Aggregate Gradation Incentive	181,000.000 DOL	1.00000	181,000.00
Section: 0001			Total:	_____.
			Total Bid:	_____.