Wisconsin Department of Transportation

Division of Transportation Systems Development
Bureau of Project Development 4822 Madison Yards Way, $4^{\text {th }}$ Floor South Madison, WI 53705

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

## NOTICE TO ALL CONTRACTORS:

Proposal \#22: 9266-11-01, WISC 2019078
V Ashwaubenon, Cormier Rd
Oneida St to Ashland Ave
Local Street
Brown County

## Letting of January 15, 2019

This is Addendum No. 01, which provides for the following:

## Special Provisions:

| Added Special Provisions |  |
| :---: | :---: |
| Article <br> No. | Description |
| 55 | Optimized Aggregate Gradation Incentive, Item 715.0710 |
| 56 | Flexural Strength for Concrete Mix Design |

## Schedule of Items:

| Revised Bid Item Quantities |  |  |  |  |  |  |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: |
| Bid Item | Item Description | Unit | Old <br> Quantity | Revised <br> Quantity | Proposal <br> Total |  |
| 465.0120 | Asphaltic Surface Driveways and Field <br> Entrances | Ton | 365 | -35 | 330 |  |


| Added Bid Item Quantities |  |  |  |  |  |
| :---: | :--- | :---: | :---: | :---: | :---: |
| Bid Item | Item Description | Unit | Old <br> Quantity | Revised <br> Quantity | Proposal <br> Total |
| 465.0125 | Asphaltic Surface Temporary | Ton | 0 | 35 | 35 |
| 715.0710 | Optimized Aggregate Gradation Incentive | DOL | 0 | 18,373 | 18,373 |

## Plan Sheets:

| Revised Plan Sheets |  |
| :---: | :---: |
| Plan <br> Sheet | Plan Sheet Title (brief description of changes to sheet) |
| 82 | Miscellaneous Quantities (Added asphaltic surface temporary) |
| 83 | Miscellaneous Quantities (Revised quantities and added pavement thickness) |

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. 01

## 9266-11-01

## January 11, 2019

## Special Provisions

## 55. 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 |
| :---: | :---: |
| $2 \mathrm{in}$. | 0 |
| $11 / 2 \mathrm{in}$. | $\leq 5$ |
| $1 \mathrm{in}$. | $\leq 16$ |
| $3 / 4 \mathrm{in}$. | $\leq 20$ |
| $1 / 2 \mathrm{in}$. | $4-20$ |
| $3 / 8 \mathrm{in}$. | $4-20$ |
| No. 4 | $4-20$ |
| No. $8^{[1]}$ | $\leq 12$ |
| No. $16^{[1]}$ | $4-20$ |
| No. $30^{[1][2]}$ | $4-20$ |
| No. $50{ }^{[2]}$ | $\leq 10$ |
| No. $100^{[2]}$ | $\leq 2.3$ |
| No. $200^{[2]}$ | Minimum of $15 \%$ retained on the sum of the \#8, \#16, and \#30 sieves. |
| Conform to $24-34 \%$ retained of fine sand on the \#30-200 sieves. |  |
| $[2]$ |  |

TABLE 2 JMF WORKING RANGE

| SIEVE SIZES | WORKING RANGE ${ }^{[1]}$ <br> (PERCENT) |
| :---: | :---: |
| 2 in. | $+/-5$ |
| $11 / 2 \mathrm{in}$. | $+/-5$ |
| $1 \mathrm{in}$. | $+/-5$ |
| $3 / 4 \mathrm{in}$. | $+/-5$ |
| $1 / 2 \mathrm{in}$. | $+/-5$ |
| $3 / 8 \mathrm{in}$. | $+/-5$ |
| No. 4 | $+/-5$ |
| No. 8 | $+/-4$ |
| No. 16 | $+/-4$ |
| No. 30 | $+/-4$ |
| No. 50 | $+/-3$ |
| No. 100 | $+/-2$ |
| No. 200 | $\leq 2.3$ |

[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 <br> (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-rsrces/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-rsrces/amp/default.aspx
7. Provide a minimum Vpaste/Vvoids 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-rsrces/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, IL, 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- $715-005(20180628)$ |  |  |

## 56. 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)

## Schedule of Items

Attached, dated January 11, 2019, are the revised Schedule of Items Pages 1 - 16.

## Plan Sheets

The following $81 / 2 \times 11$-inch sheets are attached and made part of the plans for this proposal: Revised: 82 and 83.




Proposal ID: 20190115022 Project(s): 9266-11-01

## Federal ID(s): WISC 2019078

SECTION: 0001
Alt Set ID:

## Contract Items

Alt Mbr ID:

| Proposal <br> Line <br> Number | Item ID <br> Description | Approximate <br> Quantity and <br> Units | Unit Price |
| :--- | :--- | ---: | :--- |

Proposal ID: 20190115022 Project(s): 9266-11-01

## Federal ID(s): WISC 2019078

SECTION: 0001 Contract Items
Alt Set ID: Alt Mbr ID:

| Proposal Line Number | Item ID Description | Approximate Quantity and Units | Unit Price | Bid Amount |
| :---: | :---: | :---: | :---: | :---: |
| 0398 | SPV. 0090 | 94.000 |  |  |
|  | Special 09. Storm Sewer Laterals PVC 10-Inch | LF |  |  |
| 0400 | SPV. 0090 | 199.000 |  |  |
|  | Special 10. Storm Sewer Laterals PVC 12-Inch | LF | - | - |
| 0402 | SPV. 0090 | 664.000 |  |  |
|  | Special 11. Reinforced Concrete Horizontal Elliptical Class HE-IV 38x60Inch | LF | - | . |
| 0404 | SPV. 0105 |  |  |  |
|  | Special 01. Traffic Signal Cabinet \& Controller, Cormier Rd \& Holmgren Way | LS | LUMP SUM | . |
| 0406 | SPV. 0105 |  |  |  |
|  | Special 02. Remove Traffic Signals, Cormier Rd \& Oneida St | LS | LUMP SUM | - |
| 0408 | SPV. 0105 |  |  |  |
|  | Special 03. Remove Traffic Signals, Cormier Rd \& Holmgren Way | LS | LUMP SUM | , |
| 0410 | SPV. 0105 |  |  |  |
|  | Special 04. Remove Loop Detector Wire and Lead-In Cable, Cormier Rd \& Oneida St | LS | LUMP SUM | - |
| 0412 | SPV. 0105 |  |  |  |
|  | Special 05. Remove, Salvage And Reinstall Traffic Signal Equipment, Cormier Rd \& Oneida | LS | LUMP SUM | . |
| 0414 | SPV. 0105 |  |  |  |
|  | Special 06. Remove, Salvage and Reinstall Vehicular Video Detection System, Cormier Rd \& | LS | LUMP SUM |  |
| 0416 | SPV. 0105 |  |  |  |
|  | Special 07. Install Village Furnished Monotube Arm and Pole | LS | LUMP SUM | . |
| 0418 | SPV. 0105 |  |  |  |
|  | Special 08. Remove Signal (STH 32 \& Cormier Rd) | LS | LUMP SUM | - |
| 0420 | SPV. 0180 | 10.000 |  |  |
|  | Special 01. Shredded Hardwood Bark Mulch | SY | . |  |

Proposal Schedule of Items
Proposal ID: 20190115022 Project(s): 9266-11-01 Federal ID(s): WISC 2019078
SECTION: 0001
Contract Items
Alt Set ID: Alt Mbr ID:

| Proposal Line Number | Item ID <br> Description | Approximate Quantity and Units | Unit Price | Bid Amount |
| :---: | :---: | :---: | :---: | :---: |
| 0422 | 465.0125 | 35.000 |  |  |
|  | Asphaltic Surface Temporary | TON |  |  |
| 0424 | 715.0710 | 18,373.000 |  |  |
|  | Optimized Aggregate Gradation Incentive | DOL | 1.00000 | 18,373.00 |
|  | Section: 0001 |  | Total: |  |

