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March 15, 2021

City of Lowell, Michigan
JANE ELLEN DRIVE IMPROVEMENTS - 2021
ADDENDUM No. 1

Notice to All Prospective Bidders

This Addendum is issued in accordance with SECTION 00 20 00 - INSTRUCTIONS TO BIDDERS, and is hereby incorporated into the Contract Documents. The CONTRACTOR is reminded to acknowledge receipt of this Addendum in SECTION 00 42 00 - PROPOSAL.

Clarifications

1. **Special Covid19 Conditions** – Sealed bid packages can be submitted to City Hall at 301 E. Main St., Lowell, MI 49331 via U.S. mail, UPS, Fed EX or put in the red drop box at the Monroe St. entrance of City Hall. Bid opening is March 24, 2021 at 10 a.m. Currently, the bids are scheduled to be opened via a Zoom meeting (see BID SOLICITATION). Any changes made to this process will be announced to all registered planholders at least 24 hrs. prior to the bid opening via email.
2. **Bid Submittals** – When submitting bids, you must complete and submit both **00 41 00 – Proposal**, and **00 41 00 – Bid Form** along with the required Bid Bond.
3. **Builder's Risk Insurance** – Not required for this project.
4. **Pavement Markings** – No pavement marking required. Will be done by the OWNER.
5. **Subbase** – The proposed cross sections assume that the existing sand subbase is in acceptable condition. However, the conditions will be evaluated in the field and excavation of observed unsuitable material and placement of sand subbase shall be done at the direction of the Engineer. The quantities shown in the Bid Form are allowances. Should Subbase work be directed by the Engineer, the Work will be measured and paid for by the cubic yard at the determined depth and includes all excavation, removal and disposal of unsuitable material, placement, and compaction.

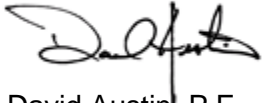
Specifications:

The following specification sections have been reissued in their entirety (unless otherwise noted):

1. **SECTION 00 10 00 – BID SOLICITATION** – Reissued to clarify bid opening date and time to be March 24, 2021 at 10 a.m.
2. **SECTION 00 42 00 – BID FORM** - Replace this section in its entirety with the enclosed revision (3 pages). Includes Changes to:
 - **Item 20 – HMA, LVSP** – Change in quantity
3. **SECTION 01 20 00 – MEASUREMENT AND PAYMENT** – Replace this section in its entirety with the enclosed revision. Changes to:
 - **Item 13 – Subbase** - Modified text to clarify instructions. There is no utility work on Suffolk.
 - **Item 14 – Agg Base, 6 inch** - Modified text to clarify instructions. There is no utility work on Suffolk.

4. **SECTION 32 10 00 – PAVING AND SURFACING** – Replace this section in its entirety with the enclosed revision. Changes to:
- **Paragraphs 2.01, C** – eliminated reference to Modified Polymer
 - **3.05 Schedules** – Eliminated Special Provision for Polymer Modified Performance Grade Binders (3 pages). Not required for this project.

Respectfully submitted,
Williams & Works



David Austin, P.E.

cc: Planholders of Record

ADVERTISEMENT
FOR THE

**CITY OF LOWELL
JANE ELLEN DRIVE IMPROVEMENTS - 2021**

The City of Lowell is soliciting sealed proposals for the **Jane Ellen Drive Improvements - 2021** project. Items of work include removing existing HMA pavement, placing and grading new aggregate base, placing new HMA, intermittent curb and gutter replacement, storm sewer, updated sidewalk ramps, and related work.

Sealed proposals will be received by The City of Lowell in the City offices located at 301 East Main Street, Lowell MI, 49331-1798 until **10:00 a.m. local time on Wednesday, March 24, 2021** at which time they will be publicly opened and read aloud via a Zoom connection.

Join Zoom Meeting

<https://us02web.zoom.us/j/9806911106>

Meeting ID: 980 691 1106

One tap mobile

+13126266799,,9806911106# US (Chicago)

+16465588656,,9806911106# US (New York)

Find your local number: <https://us02web.zoom.us/j/kca8BkcpR4>

In order for your bid to be recognized and opened, your company must be registered as a Planholder of Record for this project by completing the registration form contained on the project website.

The registration form and PDF versions of the Contract Documents may be obtained only at:

<http://williams-works.com/#bids>

Contact Williams & Works at 616-988-3507 if you have trouble accessing the Contract Documents or using the online registration form.

Bids must be accompanied by a certified check or bid bond by a recognized surety in the amount of five percent (5%) of the bid amount. After the time of opening, no bid may be withdrawn for a period of sixty (60) days.

The City of Lowell reserves the right to accept any bid, reject any or all bids, to waive informalities and to make the award in any manner deemed in the best interest of the City.

City of Lowell
BY ORDER OF:

Michael Burns
City Manager

SECTION 00 42 00

ARTICLE 1-SCHEDULE OF PRICES

For the entire Work outlined in these Contract Documents complete as specified, using equipment and materials only of the type and manufacturers where specifically named, the following unit and lump sum prices:

Lowell 220153 Jane Ellen Drive

Item	Description	Units	Quantity	Unit Price	Amount
1	Mobilization (Maximum \$15,000)	LSUM	1		
2	Maintaining Traffic (Max \$5,000)	LSUM	1		
3	Erosion & Sedimentation Control	LSUM	1		
4	Concrete Driveway and Sidewalk, Rem	Syd	160		
5	Curb and Gutter, Rem	Ft	1,107		
6	Pavt, Rem	Syd	5,200		
7	Dr Structure, Repair	Ea	5		
8	Storm Sewer, 12 inch	Lft	18		
9	Dr. Structure, 24 inch dia	Ea	1		
10	Core & Connect to Existing STM MH, 12 "	Ea	1		
11	Conc Curb and Gutter	Ft	825		
12	Gutter Pan	Ft	282		
13	Subbase, CIP	Cyd	500		
14	Agg Base, 6 inch	Syd	5,200		
15	Machine Grading	Sta	16.5		
16	Dr. Structure Cover, Adj	Ea	14		
17	Dr. Structure Cover	Lbs	4,200		
18	Gate Box, Adj	Ea	4		
19	Water Shutoff, Adj.	Ea	5		
20	HMA, LVSP	Ton	1,100		
21	Sidewalk, Conc, 4 inch	Sft	180		
22	Sidewalk Ramp, Conc, 6 inch	Sft	280		
23	Driveway Apron, Conc, 6 inch	Sft	1,000		
24	Detectable Warning Surface	Ft	55		
25	Slope Restoration	LSUM	1		

TOTAL BASE BID \$ _____

A1 BID Alternate - Deliver HMA Millings to City Yard

Add / Deduct \$ _____

SECTION 00 42 00

ARTICLE 2 - MATERIAL AND EQUIPMENT SELECTION

The Contract Documents stipulate that the Base Bid price shall include materials and equipment selected from the designated items and manufacturers listed herein. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

The Base Bid is submitted on the basis of supplying the following products, selected from the items and manufacturers listed herein:

Item	Manufacturer
_____	_____
_____	_____
_____	_____
_____	_____

Failure to complete Article 2 of the Bid Form shall be considered an irregularity by the Owner. In such cases where Article 2 is not completed, the Owner shall assume the Bidder has named one of the named suppliers as given in the appropriate technical section.

ARTICLE 3-MATERIAL AND EQUIPMENT ALTERNATES

The Contract Documents stipulate that the Base Bid price shall include materials and equipment selected from the designated items and manufacturers listed therein. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the BIDDER wishes to quote alternate items for consideration by the OWNER, he may do so under this Article. A complete description of the item and the proposed price differential are to be provided. Unless approved at the time of award, substitutions, where items are specifically named, will be considered only in accordance with the terms set forth in the General Conditions.

Item No.	Description	Add/Deduct Amount (Dollars)
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SECTION 00 42 00

ARTICLE 4-TIME ALTERNATE

If the BIDDER takes exception to the time(s) stipulated in Article 3 - Contract Time of the Agreement, he is requested to stipulate below his proposed time for performance of the Work. Consideration will be given to time in evaluating bids.

ARTICLE 5-SUBCONTRACTOR LISTING

Bid is submitted on the basis of the use of the following Subcontractors:

Work Item	Firm	City
Concrete	_____	_____
HMA Paving	_____	_____
Restoration	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please note if work is to be performed by BIDDER. OWNER shall have the right to reject any Subcontractor for reasonable cause. If Subcontractors are not identified in the Bid, the BIDDER/CONTRACTOR shall engage a Subcontractor acceptable to OWNER and waives the right to withdraw Bid and Bid Security, and further, waives right to a change in Contract Time or Price due to failure to list.

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. Measurement and payment criteria applicable to the Work.

1.02 AUTHORITY:

- A. Measurement methods delineated in the individual specification sections are intended to complement the criteria of this section.
- B. The ENGINEER will take all measurements and compute quantities accordingly.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.03 UNIT QUANTITIES SPECIFIED:

- A. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the ENGINEER shall determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit prices contracted.

1.04 MEASUREMENT OF QUANTITIES:

- A. Measurement Devices:
 - 1. Weigh Scales: Inspected, tested and certified.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering Devices: Inspected, tested and certified.
- B. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook weights.
- C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- D. Measurement by Area: Measured by square dimension using mean length and width or radius.
- E. Linear Measurement: Measured by linear dimension, at the item centerline.

1.05 PAYMENT:

- A. Payment Includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the ENGINEER multiplied by the unit price for Work which is incorporated in or made necessary by the Work.

1.06 MEASUREMENT AND PAYMENT SCHEDULE:

- A. The following schedule outlines the method of measurement and basis of payment to be used on this project. Requirements for materials and methods described under each unit price are included in the specification sections.
- B. Quantities of work completed under the contract will be measured by the Engineer according to United States standard measures unless otherwise noted. Quantities of materials furnished and of work performed under the contract will be determined by methods of measurement and computations that are generally recognized as conforming to good engineering practice. Unless

specified in the contract, manufacturing tolerances established by the industries involved will be accepted. When required by the Engineer, the Contractor shall file copies of paid freight bills, trucking slips, bills of lading, and paid invoices for any material used in the work.

- C. When the contract specifies payment of an item or part of an item on a plan quantity basis, the payments will be those quantities shown on the plans. Any changes to the quantities will result from an authorized variation in the plan. For earthwork, the basis for changes in quantities will include any of the following:
1. Changes in original ground topography after the original survey was made;
 2. Any demonstrated errors discovered in plan quantities;
 3. Any changes required by the Engineer during construction, such as: grade changes, changing of cut or fill slopes, and for excavation of peat, muck, marl, and underlying very soft clay.
- D.
1. **Mobilization** - Will be paid in accordance with MDOT procedures and consists of preparatory work and operations, including, but not limited to the following: The movement of personnel, equipment, supplies, and incidentals to the project site; The establishment of the Contractor's offices, buildings, and other facilities to work on the project; Expenses incurred, prior to beginning work on the various contract items on the project site; Pre-construction costs, exclusive of bidding costs, which are necessary direct costs to the project rather than directly attributable to other pay items under the contract; The maximum amount that will be paid is stated on the bid form.
 2. **Maintaining Traffic** - Will be measured and paid as a lump sum and includes all necessary signing, flagging, traffic regulators, drums, and barricades to safely maintain traffic and protect the work site during the duration of the project per the requirements provided in the plans and specifications. Includes all signs shown on the Maintaining Traffic plan sheet.
 3. **Erosion & Sedimentation Control** – Paid for as a lump sum and includes all equipment, materials, and labor required for construction, maintenance, and removal of the erosion control and sediment filtration items including silt fence, inlet protection, and necessary best management practice items.
 4. **Concrete Driveway and Sidewalk, Rem** - Will be measured and paid for where marked for removal by Engineer and paid for by the square yard.
 5. **Curb and Gutter, Rem** - Will be measured by the lineal ft. along the base of the curb face or along the flowline of the gutter where marked by the Engineer, regardless of vertical size. Includes saw cutting. Removal of curb, curb and gutter, or gutter in conjunction with removing concrete or masonry pavement or concrete driveways will be measured and paid as Pavt, Rem.
 6. **Pavt, Rem** - Includes the removal of HMA surface, and existing aggregate base where the existing aggregate base is being replaced. **Pavt, Rem** will be measured and paid for where marked for removal by Engineer and paid for by the square yard. Saw cutting of existing pavement edge is included and will not be paid for separately.
 7. **Dr Structure Repair** paid for each Structure repaired. Payment includes all excavating about the damaged or suspected damaged drainage structure, placing concrete patching to seal/repair leak as directed by Engineer backfilling and adjusting the casting. Each vertical foot more than one vertical foot below the casting will be paid as an additional Dr Structure Repair.
 8. **Storm Sewer, 12 inch** - Measured horizontally on the surface along the pipe centerline from center to center of structures and paid for by the linear foot by the pipe size, regardless of pipe material and classification, installed and backfilled, item includes driveway culverts of same size.
 9. **Dr Structure, 24 inch dia**: measured and paid for the each including: concrete footing and temporary and final grade adjustments.

10. **Core & Connect to Existing STM MH, 12 "** - Counted and paid for by the unit, including coring of existing structure and related work.
11. **Conc Curb and Gutter** - Will be measured in place along the face of the curbing and paid for by the lineal foot for the detail/type constructed, regardless of height. No deductions will be made in length for catch basins or inlet castings.
12. **Gutter Pan** – Measured and paid for by the lineal foot. Includes grading and placement of compacted base material. Includes hand patch repair to adjoining disturbed pavement outside of street reconstruction area. Curb ramp openings and gutter pans at drive openings identified for replacement will be paid for as **Gutter Pan**.
13. **Subbase, CIP** – The proposed cross sections assume that the existing sand subbase is in acceptable condition. However, the conditions will be evaluated in the field and excavation of observed unsuitable material and placement of sand subbase shall be done at the direction of the Engineer. The quantities shown in the Bid Form are allowances. Should Subbase work be directed by the Engineer, the Work will be measured and paid for by the cubic yard at the determined depth and includes all excavation, removal and disposal of unsuitable material, placement, and compaction. ~~Payment for sub base disturbed during utility installation on Suffolk St. is included in the pay items for that utility.~~
14. **Agg Base, 6 inch** - Measured by the square yard, compacted in place where necessary for construction of the proposed pavement section. ~~Payment for aggregate base disturbed during utility installation on Suffolk St. is included in the pay items for that utility.~~
15. **Machine Grading** - The item consists of grading to form the road cross section as shown on the plans. This work includes scarifying, plowing, disking, moving, compacting, and shaping. Grade all intersections, approaches, entrances, and driveways as shown on the plans or as directed by the Engineer. The Engineer must approve using the excavated roadbed materials for use to shape aggregate base materials. Measured along centerline and paid for by the 100 ft. Station. Intersections are included and not to paid for more than once.
16. **Dr. Structure Cover, Adj** - Measured and paid for by the unit. Includes sawcutting existing pavement, curb, and curb and gutter, where required, and adjusting the cover up or down, regardless of height, to the required elevation. Removing and replacing pavement adjacent to the adjusted cover is included in the item **Dr Structure Cover, Adj**. Removing and replacing curb and gutter adjacent to the adjusted structure is not included in adjusting the structure and will be paid for separately. Where new castings are installed, removed castings shall remain property of the City. The City will collect castings from the jobsite with their own forces.
17. **Dr. Structure Cover** – As determined by the Engineer in the field. Measured and paid for by the pound per shipping receipt/catalogue weight. Where drainage structure covers are replaced, the salvaged castings will remain the property of the City. The City will collect these castings.
18. **Gate Box, Adj**. (main line valve boxes) - Measured and paid for each gate box adjusted. Includes furnishing and installing extension(s) as needed and adjusting the existing casting. Pavement removal and replacement for temporary lowering of the gate box, excavation and all other work necessary to restore the area are included in adjustment items of work. The contractor, at his own expense, may elect to replace the uppermost section of the valve box and cover.
19. **Water Shutoff, Adj** (service valve boxes) - Measured and paid for each water shutoff adjusted. Includes furnishing and installing extension(s) as needed and adjusting the existing casting. Pavement removal and replacement for temporary lowering of the water shutoff, excavation and all other work necessary to restore the area are included in adjustment items of work. The contractor, at his own expense, may elect to replace the uppermost section of the valve box and cover.
20. **HMA, LVSP** - Will be measured and paid by weight in tons for HMA placed, compacted and accepted. No additional payment will be made for intersections, hand patching, or bit valley gutter include these costs in the item.

21. **Sidewalk, Conc, 4 inch** - Will be measured in place and paid for by the square foot. Includes grading and placement of compacted base material.
22. **Sidewalk Ramp, 6 inch** - Measured and paid for by the square foot. Includes all items for the work to comply with the ADA. Pay limits are from back of curb to first control joint up gradient from the detectable warning plate. All ramps shall be six inches thick.
23. **Driveway Apron, Conc, 6 inch** - Will be measured in place and paid for by the square foot. Includes grading and placement of compacted base material.
24. **Detectible Warning Surface** - Measured and paid for by the linear foot. All materials shall be on the MDOT approved manufacturers list. Color shall be brick red.
25. **Slope Restoration** paid for as a lump sum. Includes replacing topsoil, placing seed, and straw mulch blanket staked in place, fertilizer and watering as necessary per specifications for all areas disturbed by the contractors operations.
- A1 **Bid Alternate – Deliver HMA Millings to City Yard –**. Paid or credited as a Lump Sum, delivered to the City location designated in the specifications. Base bid amounts should assume the BIDDER will retain ownership of the surplus HMA Millings. The Bid Alternate asks for price (add/deduct) to give surplus HMA millings to the OWNER.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Work includes construction of new and reconstruction of existing HMA pavements including associated earthwork, paving and surfacing for all roads, driveways, parking lots, curb and gutter, sidewalks, and shoulders.
- B. Definitions:
 - 1. Pavement structure: Any combination of subbase, base course, and surface course, including shoulders, placed on a subgrade.
 - 2. Permanent pavement: All improved pavement surfaces above the quality of treated or untreated gravel.
 - 3. Subgrade: That portion of the earth grade upon which the pavement structure is to be placed.
 - 4. Subbase: The layer of specified material of designed thickness placed on the subgrade as a part of the pavement structure.
 - 5. Base course: The layer or layers of specified or selected material of designed thickness placed on a subbase or a subgrade to support leveling and surface courses.
 - 6. Leveling course: Layer of specified material placed on the base course in preparation for the surface course.
 - 7. Surface course: The top layer of a pavement structure.
 - 8. Maximum density (soils): Maximum unit weight of soil material according to Modified Proctor Method ASTM D1557.
 - 9. Maximum density (HMA): Maximum unit weight of a representative sample of the hot mix asphalt according to the Marshall Method ASTM D2726.

1.02 REFERENCES:

- A. Michigan Department of Transportation (MDOT), "Standard Specifications for Construction," 2012 ed.
- B. American Society of Testing Materials (ASTM), latest edition.

1.03 SUBMITTALS:

- A. Asphalt Mix Design: Provide job-mix formula prepared by independent lab or approved by MDOT for HMA surface course to ENGINEER two weeks prior to paving.
- B. Certification of quality by producer for the following:
 - 1. Cement
 - 2. Aggregates
 - 3. Asphalt cement
 - 4. Pavement marking material
 - 5. Prime coat
 - 6. Bond coat
- C. Concrete Test Specimens: Provide sample.

1.04 JOB CONDITIONS:

- A. Seasonal Limitations:
 - 1. Removal of permanent pavement: Unless otherwise specified, execute during the period from March 15 to October 15.

SECTION 32 10 00

- 2. Restoration of permanent pavement: Unless otherwise specified, execute during the period from May 5 to November 15 (Region South of M-46).
- B. Clean up promptly following pavement installation. All removed material becomes property of CONTRACTOR.
- C. Maintenance of Temporary Surfaces: Maintain temporary surfaces until permanent pavement installation is completed.
- D. Driveway Closing: 24 hour maximum except during concrete curing process. Provide on-street parking for residents during driveway closings. Make provisions for disabled persons.
- E. Allow access to the HMA plant for verification of mix proportions, aggregate gradations, and temperatures.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Subbase: Granular material MDOT Class II or IIA, MDOT table 902-3.
- B. Aggregate Base: MDOT 21AA aggregate conforming to Table 902-1 and Table 902-2, except for the following modifications.

Sieve Analysis, Total Percent Passing

21AA	1½"	1"	½"	No. 8	No. 30	LBW *
	100	85 - 100	50 - 75	20 - 45		4 - 8

* Footnote - "e" in Table 902-1 shall not apply to assure the base is permeable.

Physical Requirements

Crushed material, Min. 95%
 Loss, % Max., Los Angeles Abrasion (MTM 102) 40%

- C. HMA Leveling and Surface Courses – Shall be MDOT mixture HMA, LSVP, ~~Modified Polymer. See POLYMER MODIFIED PERFORMANCE GRADE BINDERS~~ Special Provision in Section 3.05 of this specification.
- D. HMA Bond Coat: HMA material. MDOT 904-5. (SS 1h Asphalt emulsion)
- E. Pavement Marking: Conform to MDOT 920.
- F. Concrete Curb & Gutter: Unless otherwise specified, use concrete Grade P1 for concrete curb, gutter, combination curb and gutter, gutter pan and spillways. MDOT 601, 701, 5.5 sacks per cubic yard minimum.
- G. Concrete Sidewalk: Unless otherwise specified, use concrete Grade P1 for concrete sidewalk, ramps and steps. MDOT 601, 701, 5.5 sacks per cubic yard minimum.
- H. Concrete Joint Filler: Conform to ASTM D 1751.
- I. Reinforcing Bars: Bar reinforcement shall be deformed steel bars meeting ASTM requirements as specified under MDOT 905.

- J. Curing Compound: Conform to ASTM C 309 Type 2 White Membrane Curing Compound.
- K. Detectable Warning Surface - All materials shall be on the MDOT approved manufacturers list. Color shall be brick red.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Removal: Remove all existing pavement structure required, as shown on the plans or in the proposal.
 - 1. Pavement remnant limit: Remove pavement to edge or joint, where dimension is less than 3 feet. All removals shall be to a saw cut edge if a joint is more than three feet away.
 - 2. Butt joint: Provide where new pavement meets existing pavement.
- B. Dispose of all material removed during the construction.
 - 1. If Bid Alternate is awarded for the City to keep the HMA millings, HMA millings are to be delivered and deposited to a City of Lowell Department of Public Works yard located at 504 Front St., Lowell, MI 49331. This yard is located approximately 1.3 mi. from the project location. CONTRACTOR to make arrangements with OWNER 48 hrs, in advance.
- C. Subgrade:
 - 1. Obtain approval prior to placing the subbase or base course.
 - 2. Construct to the required line, grade and cross section. MDOT 205.03.N.
 - a. Tolerance if subbase is required: Trim within \pm 1 inch of design grade.
 - b. Tolerance if subbase is not required: Trim within \pm 3/4 inch of design grade.
 - 3. Compaction:
 - a. Compact to not less than 95 percent of the maximum density using Modified Proctor.
- D. Excavation: Conform to MDOT 205.03.G.
- E. Embankment: Conform to MDOT 205.03.H.

3.02 PERFORMANCE:

- A. Subbase:
 - 1. Placed where shown on plan sheet or directed by Engineer in field.
 - 2. Thickness: Conform to design cross section or as directed by Engineer in field.
 - 3. Construction method:
 - a. Place in layers not exceeding 12 inches loose measure.
 - b. Spread evenly and compact to not less than 95 percent maximum density according to Modified Proctor.
 - c. Conform construction to MDOT 301.01 thru 301.03.
- B. Aggregate Base Course:
 - 1. Construction Method: Conform the placing of aggregate base course with MDOT 302.01 thru 302.03.
 - 2. Drives: Fine grade existing aggregate in preparation for HMA surfacing to provide:

- a. A uniform grade from sidewalk to back of curb.
 - b. A smooth surface free from ruts, bumps and other obstructions.
 - c. A tight flush joint between proposed HMA surface and existing or proposed sidewalk and curb and gutter.
 3. Provide clean aggregate as required to meet proposed grades. Dispose of all excess aggregate.
- C. HMA Surface Course:
1. Thickness: Yield specified on plans - Do not place HMA mixture in lifts exceeding 2 inches unless otherwise approved.
 2. Construction Methods:
 - a. Paving: Conform method of paving to MDOT 502.03.F.
 - b. Prior to placement of HMA surface, grades will be verified by CONTRACTOR. Any deficiencies in grade shall be corrected prior to placement of surface course.
 3. Windrowing (placing a lift of varying thickness to create a crown) HMA shall not be allowed to correct grading deficiencies.
 4. Pavement density: Minimum density of in-place course material when the course thickness is greater than 3 times the maximum aggregate size of the mix shall be 97 percent of the recorded laboratory specimen density and 95 percent when the course thickness is less.
- D. Concrete Curb & Gutter (P1 & S2): Conform to MDOT R-30 series for profile.
1. Removal: Remove to joint.
 2. Thickness: Conform thickness to plan detail.
 3. Construction Methods: Unless otherwise specified, construct curbing mechanically or with forms and either by casting separately or as an integral part of the pavement MDOT 802.
- E. Concrete Sidewalk (P1 & S2):
1. Sidewalk ramps shall meet MDOT Standard Plan R-28-series.
 2. Removal: Remove to joints.
 3. Thickness: 4 inches nominal and 6 inches at driveways and alleys.
 4. Construction Methods: Conform construction of sidewalks, unless otherwise specified, to MDOT 803 and details on the Drawings.
- F. Curing Compound:
1. Conform placement to MDOT 602.03.M.
 2. Place immediately after free water has left the surface, maximum of 4 hours after pouring.
 3. Mix thoroughly before application, do not thin.
 4. Minimum of one gallon per 25 square yards.
 5. CONTRACTOR responsible for any sidewalk that cures improperly, regardless of curing compound usage or methods.

3.03 STRUCTURE ADJUSTMENT:

- A. Street Castings.
1. Adjust castings to finish grade or to a maximum of 1/4" below finish grade of all manholes, catch basins, and valve boxes.
 - a. Set grades of castings and valve boxes from street grades with a tilt of castings where necessary to meet proposed street grades and crown.
 - b. All castings, when adjusted to finish grade, shall be back filled with a concrete mix placed to the same elevation as the HMA leveling course.

2. Castings shall be adjusted to finish grade after the leveling course is complete.
 - a. Castings shall be kept below grade or flush with the proposed sand subgrade so as not to conflict with grading operations or conflict with placement of leveling course.
3. Adjustment of new structures will not be paid for separately.

3.04 TESTING AND INSPECTION:

- A. Inspection: By the ENGINEER or his designated authorized representative.
- B. Acceptance Testing:
 1. DIVISION 1 - SECTION 01450 QUALITY CONTROL.
 2. If initial testing indicates failed or nonconformance to specifications, perform additional tests. If further testing verifies nonconformance, additional testing shall be paid by CONTRACTOR. Replace nonconforming material at no additional cost to OWNER.
- C. Aggregates:
 1. Sampling and analysis: Michigan Testing Methods, Series 100.
 2. Exception: Provide certification of approved stockpiled material.
- D. HMA Mix Composition:
 1. Sampling: ASTM D979, one sample per mix or one per two thousand tons.
 2. Extraction: ASTM D2172.
 3. Sieve analysis: ASTM C117 and ASTM C136.
- E. Concrete:
 1. Slump: 3.5 inches maximum.
 2. Entrained Air: 5.5 to 8 percent.
 3. Strength: 3500 psi, 28 day.

END OF SECTION

SECTION - 32 10 00 – PAVING & SURFACING
3.05 A. SCHEDULES

CITY OF LOWELL

SPECIAL PROVISION
FOR
POLYMER MODIFIED PERFORMANCE GRADE BINDERS

W&W

1 of 3

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a. Description. This special provision shall consist of furnishing a polymer modified performance grade binder for incorporation into the designated bituminous mixtures. The performance grade binder will be provided according to the requirements of the 2012 Standard Specifications for Construction, except where modified herein.

This special provision only applies when polymer modified performance grade (PG) binders are identified by the suffix "P" at the end of a grade. For example, PG 64-28(P), PG 70-22(P). (The binder grades listed for a specific project are listed in the Bituminous Application Estimate Table found in the plans).

b. Materials. The polymer modified asphalt shall be preblended by adding a polymer to a base asphalt supplied from one of the approved certifiers listed in the MDOT Materials Sampling Guide.

Direct in-line blending of polymer at the hot mix plant is allowed only if the Contractor is one of the approved certifiers listed in the MDOT Materials Sampling guide.

The modified asphalt binder shall be smooth, homogenous and comply with the requirements shown in Table 1 or Table 2. Results from the listed tests recently conducted on the binder shall be submitted to the Engineer in accordance with Section 104.02 of the Standard Specifications prior to paving.

If polymers and modifiers other than styrene-butadiene-styrene (SBS) or styrene-butadiene rubber (SBR) are used for asphalt binder modifications, approval from the Engineer will be needed.

c. Reclaimed Asphalt Pavement (RAP) Guidelines. When specifying a polymer modified asphalt binder, the use of reclaimed asphalt pavement (RAP) shall be limited to a maximum of 14 percent by weight of the total binder in the mixture. A binder grade adjustment is not allowed. When a polymer modified binder is used in a mix, any other special provision within this contract that refers to RAP usage does not apply.

e. Measurement and Payment. Payment for this work shall be included in the price bid for the applicable bituminous items of work.

Table 1 Requirements for Styrene-Butadiene-Styrene (SBS) Modified Binders

Test	Asphalt Grade PG 58-34(P), PG 64-28(P) PG 70-22(P), PG 70-28(P)	Asphalt Grade PG 64-34(P), PG 76-22(P), PG 76-28(P)
Tests On Original Binder, (1)		
Separation of Polymer ASTM D5892-96A 163 °C, 48 hours, (R & B difference between top and bottom), Maximum	2	2
Force Ratio AASHTO T300-95 4°C, 50 mm/min.; 300 mm elongation, Minimum	0.30	0.35
Tests On Residue From Rolling Thin Film Oven, (1)		
Elastic Recovery AASHTO T301-95, 25°C 100 mm elongation, and cut immediately, % Minimum	60	70
Footnote (1): Report DSR values for G/sin δ and the phase angle at the high-grade temperature on the original and on the RFC residue for informational purposes.		

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Table 2 Requirements for Styrene-Butadiene-Rubber (SBR) Modified Binders

Test	Asphalt Grade PG 58-34(P), PG 64-28(P) PG 70-22(P), PG 70-28(P)	Asphalt Grade PG 64-34(P), PG 76-22(P), PG 76-28(P)
Tests On Original Binder, (1)		
Separation Of Polymer ASTM D5892-96A 163°C, 48 hours, (R & B difference between top and bottom), Maximum	2	2
Toughness ASTM D5801 25°C, 500 mm/min Newton-Meters (inch-pounds), Minimum	12.5 (110)	12.5 (110)
Tenacity ASTM D5801 25°C, 500 mm/min, Newton-Meters (inch-pounds)	8.5 (75)	8.5 (75)
Tests on Residue from Rolling Thin Film Oven, (1)		
Elastic Recovery AASHTO T301-95, 25°C 100 mm elongation, and cut immediately, %minimum	40	50
Footnote (1): Report DSR values for G/sin, and the phase angle at the high-grade temperature on the original and on the RTFO residue for informational purposes.		

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