

PROJECT MANUAL

WASHTENAW COMMUNITY COLLEGE
ANN ARBOR, MICHIGAN

HFC PARKING LOT FIRE REPAIR
ANN ARBOR, MICHIGAN

ISSUED FOR BIDS

JULY 22, 2026

PROJECT NO. #75350

CIVIL ENGINEER:

WASHTENAW ENGINEERING COMPANY

Issued for Bids July 22, 2026			
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Washtenaw Community College
HFC Parking Lot Fire Repair
Ann Arbor, Michigan

#75350

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SECTION 00 0107 – SEALS PAGE

PART I GENERAL

1.01 ENGINEER

I hereby certify this plan, specification, or report was prepared by myself or under my direct supervision and I am a duly Registered Professional Engineer under the laws of the State of Michigan.

Signed

Date

Printed Name

Registration No.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 1100 – SUMMARY OF WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 PROJECT

- A. The owner intends to repave a section of porous asphalt pavement at the Health and Fitness Center parking lot that was damaged by a car fire.
- B. The owner has employed a Contractor to bid, coordinate, monitor and provide inspection of the work.
- C. All work shall be completed in a single phase while maintaining owners operations at the Health and Fitness Center parking lot.
- D. The project work scope is being issued by the Owner to a single general Contractor bid package.

1.03 CONTRACTS

- A. The Owner will solicit lump-sum proposals for the Work. The extent of work shall be fully described by the Contract Documents. Refer to the Owner's bidding information for additional descriptions and requirements.
- B. Work for the complete construction of the Project will be under a single General Contract awarded by the Owner.
 - 1. The successful General Contractor will manage the construction of the Project and assume responsibility for coordination and monitoring of the Work.
- C. Important Notice to all Bidders and Contractors:
 - 1. The "Contract Documents", as defined in the General Conditions, include "The Drawings". The Contractor shall be responsible for his work as specified herein and as indicated in the Contract Documents.
 - 2. Contractors are also advised they are responsible for all Work shown in any of the documents and they must execute all Work on the drawings.
 - 3. Contractors are directed to use indicated dimensions for determining material quantities and for other reasons. No additional monies will be allowed due to contractors using "Scaling Instruments" to determine material quantities or for other reasons.
- D. All work is to be performed as shown on the plans and specified herein including providing all labor, equipment, and materials to complete the work in accordance with the Drawings and Specifications.
- E. The contractor shall provide a schedule and work plan on obtaining all necessary permits, materials, and procurement of long-lead items, to begin work and complete the work as scheduled for review by the Owner within 2 weeks of award.
- F. The Campus is in Ann Arbor Township and Superior Township. Contractor shall coordinate permitting approval for work pertaining to the township's jurisdiction. This project falls within Ann Arbor Township jurisdiction therefore permitting is through them.
- G. The construction schedule for this contract will be based on the following timelines: Construction to start 9/3/26. Project Completion will be 11/1/26.
- H. Enter site as directed by Owner. At conclusion of work remove all temporary construction and restore site to preconstruction condition. Do not allow vehicles to track mud, dirt or debris outside of construction area.
- I. Construction parking will only be within area designated by Owner. No parking is permitted on sidewalks, lawns, or undesignated parking areas.

- J. Barricades, Warning Signs, Lights and Fencing: Comply with standards and code requirements for adequate barricades, lighting, barricades and fencing. Construction area to be clearly marked to inform personnel and the public of the hazards as required.
- K. Porta-John to be provided by Contractor onsite according to the plans.
- L. The Contractor shall maintain free access for traffic around project site.
- M. Contractor to provide dumpster(s) for the project if one is required.
- N. Contractor and employees are to observe the College's no smoking policy.
- O. Contractor's and employees' vehicles to be parked in designated parking lots as noted on site plan.
- P. Contractor to provide its own equipment and tools necessary to complete this contract.
- Q. Contract to field verify all dimensions and quantities needed for this project.

1.04 REFERENCED STANDARDS

- A. All construction shall be performed per the current Washtenaw County Road Commission Standards or current MDOT Specifications.
- B. All traffic control devices shall be signed per the 2025 Michigan Manual of Uniform Traffic Control Devices.
- C. Work shall be done per requirements of Ann Arbor Township.
- D. Safety: Comply with applicable requirements of OSHA, MIOHA, EP and any other government entity having jurisdiction.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 1800 - UTILITY COORDINATION

PART 1 GENERAL

- A. Public Utilities may be located within the Project Limits.
- B. **On all projects: "72 Hours before you Dig - Call MISS DIG - Toll Free".....800-482-7171.**
- C. The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the highway right-of-way. This does not relieve the Contractor of the responsibility of notifying utility owners who may not be a part of the "Miss Dig" alert system.
- D. When utilities which are not shown on the plans must be moved to new locations, no additional compensation will be paid to the Contractor for reasonable delays beyond the control of the Owner.
- E. Work stoppages by employees of utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 2100 – CONTINGENCY ALLOWANCES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Allowance

1.03 ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Allowance.
- B. Funds will be drawn from the allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

- A. Include an allowance of \$10,000 for Owner approved changes.

1.05 CONTRACT

- A. WCC requests that this bid includes a mandatory Contingency Allowance of \$10,000. This amount will be used for potential changes or added scope and will be dictated for use by WCC. Remaining amounts will be returned at job close-out
- B. The contractor shall provide a schedule/work plan on obtaining the necessary permits, materials, and procurement of long-lead items, to begin work and complete the work as scheduled for review by the Owner within 2 weeks of award.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 2200 – UNIT PRICES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. List of unit prices, for use in preparing Bids.
- B. Measurement and payment criteria applicable to Work performed under a unit price payment method.
- C. Defect assessment and non-payment for rejected work.

1.03 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include 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.

1.04 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. Measurements and quantities will be verified by Owner.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.
- D. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- E. Measurement by Area: Measured by square dimension using mean length and width or radius.
- F. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- G. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.
- H. Project will utilize the following measurement of quantities as noted on plans and in instructions to bidders.

Base Bid

- 1. Remove & Replacement 4" Porous Asphalt pavement \$____/SF (Square Feet)
- 2. Remove & Replace Washed 6A Limestone \$____/CY (Cubic Yard)
- 3. Saw Cut HMA Surface \$____/LF (Lineal Foot)
- 4. Traffic Control \$____/LS (Lump Sum Fee)
- 5. Final Cleanup \$____/LS (Lump Sum Fee)
- 6. Erosion Control \$____/LS (Lump Sum Fee)
- 7. Pavement Markings \$____/LS (Lump Sum Fee)

1.06 PAYMENT

- A. Project is a Lump Sum Contract and unit prices will only be used as directed by Owner for changes necessary during construction.

- B. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Engineer, multiplied by the unit price.
- C. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from the transporting vehicle.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, assemblies, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are NOT considered substitutions:
 - 1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
 - 2. Revisions to Contract Documents requested by the Owner or Engineer.
 - 3. Specified options of products and construction methods included in Contract Documents.
 - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 REQUESTS FOR SUBSTITUTION

- A. Substitutions: For a period of 15 working days after Subcontract Award, Engineer will consider written requests from Contractor for substitution of products. Requests received more than 15 working days after Subcontract award may be considered or rejected at the discretion of the Engineer.
 - 1. Engineer will consider substitutions after 15 days of Subcontract award only if one of the following conditions applies.
 - a. Specified products are no longer manufactured.
 - b. Owner will realize an additional cost savings over and above the original Bid cost.
 - c. Owner will receive a superior product to those specified and/or realize a significant maintenance and operating cost savings.
 - d. Overall construction time will be reduced (not just the time for the trade offering the substitution).
- B. A request for substitution constitutes a representation that the Contractor:
 - 1. Has investigated the proposed product and determined it is equal to or exceeds the quality level in all respects of the specified product and that it will perform adequately in the application intended.
 - 2. Will provide the same warranties or bonds for substitution as for product specified.
 - 3. Will coordinate installation as an accepted substitution into the Work, and make such other changes as may be required to make the work complete in all respects with no additional cost to the Owner or other contractors.
 - 4. Waives all claims for additional costs or time extension under his responsibility which may subsequently become apparent.
 - 5. Will pay all Engineer's redesign cost, special inspections, and all other cost caused by substitutions.

- C. Submit a separate request for each product. Each request shall be on a separate "Substitution Request" form, use CSI/CSC Form 13.1A a sample of which is included at the end of this Section. Provide complete data, drawings and samples as appropriate, with each request, including:
 - 1. Comparison of qualities of proposed substitution with that specified.
 - 2. Changes required in other elements of work because of substitution.
 - 3. Effect on construction schedule.
 - 4. Cost data comparing proposed substitution with product specified.
 - 5. Any required license fees or royalties.
- D. Engineer will be judge of acceptability of proposed substitution except where cost is involved.
- E. Substitutions WILL NOT be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Engineer will review requests for substitutions with reasonable promptness and notify Contractor in writing of decision to accept or reject requested substitution.

1.05 SUBMITTAL REQUIREMENTS

- A. Submit one electronic copy of each request for substitution for consideration. Submit requests on the "Substitution Request" form included at the end of this Section and in accordance with procedures required for Change Order proposals.
 - 1. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Certification by the Contractor and Supplier that the substitution proposed is equal-to or exceeds the specified product in every significant respect to that required by the Contract Documents, and will perform adequately in the application indicated.
- B. For products:
 - 1. Product identification, including manufacturer's name.
 - 2. Manufacturer's literature, marked to indicate specific model, type, size, and options to be considered:
 - a. Product description.
 - b. Performance and test data.
 - c. Reference standards.
 - d. Difference in power demand, air quantities, etc.
 - e. Dimensional differences from specified unit.
 - 3. Full size samples if requested.
 - 4. Engineer reserves right to retain sample until physical units are installed on Project for comparison purposes.
 - 5. Requester pay all costs of furnishing and return of samples.
 - 6. Engineer is not responsible for loss of, or damage to, samples.
 - 7. Name and address of at least 3 similar projects and name of Owner's Representative Engineer can contact; to discuss product, installation, and field performance data.
- C. For construction methods:
 - 1. Detailed description of proposed method.
 - 2. Illustrate with drawings.
- D. Itemized comparison of proposed substitute to specified item; indicate variations including size, weight, durability, and visual effect.
- E. Data relating to changes in construction schedule.

- F. Effect and changes required on separate or other contracts.
- G. Coordination information necessary to accommodate the proposed substitute. Include a list of changes or modifications needed to other parts of the Work and to construction performed by separate contractors.
- H. Complete breakdown of costs, of proposed substitution which shall include additional costs and saving generated by proposed substitution and shall indicate amount, if any, to be deducted from Contract Sum if proposed substitution is accepted.
- I. Availability of maintenance and repair services, and sources of repair or replacement items.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS

- A. Conditions: Contractor's substitution request will be received and considered by the Engineer when the following conditions are satisfied, as determined by the Engineer; otherwise requests will be returned without action except to record noncompliance with these requirements.
 - 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of Contract Documents.
 - 3. The request is timely, fully documented and properly submitted.
 - 4. The specified products or method of construction cannot be provided within the Contract Time. Request will not be considered if product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
 - 5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - 6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear, including but not limited to costs incurred by the Owner due to redesign and re-engineering that the Engineer must engage in to modify Contract Documents and any (re)submissions to the Authorities Having Jurisdiction (AHJ) to accommodate the Substitution..
 - 7. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certified that the proposed substitution will provide the required warranty.
- B. Substitutions WILL NOT be considered if:
 - 1. Substitutions are not submitted in conformance with this Section.
 - 2. Acceptance will require substantial revision to the Contract Documents, or building spaces.
 - 3. Request for substitution does not indicate specific item for which request is submitted.
 - 4. Request Form is not properly executed
 - 5. Acceptance of manufacturer only will not be made.
 - 6. Requested directly by a Subcontractor or supplier.
 - 7. Insufficient information submitted.
- C. Engineer's Action: Within one week of receipt of the request for substitution, the Engineer will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Engineer will notify the Contractor of acceptance or rejection of the proposed substitution. Acceptance will be in the form of a Change Order.
 - 1. If a decision on use of proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.
- D. The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents

does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 EXECUTION – NOT USED

END OF SECTION



SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

From: _____
To: _____ Date: _____

A/E Project Number: _____
Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 2-5 years old ☐ 5-10 yrs old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SUBSTITUTION REQUEST (Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

SECTION 01 2600 – CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for handling and processing Contract Modifications.

1.03 MINOR CHANGES IN THE WORK

- A. Supplemental instructions authorizing minor changes in the Work not involving an adjustment to the Contract Sum or Contract Time may be issued by the Engineer with supplemental instructions.

1.04 CHANGE ORDER PROPOSAL REQUEST

- A. Owner/Engineer initiated proposal requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Owner or Engineer with a detailed description of the proposed change and supplemental or revised drawings and specifications, if necessary.
 - 1. Proposal requests issued by the Owner or Engineer are for information only. Do not either stop work in progress or execute any proposed change based on any description or instruction. Continue work in areas surrounding the proposed change as possible, but only to extent it will not increase the Contract Sum or Contract Time.
 - 2. Unless otherwise indicated in the proposal request, submit an estimate of the cost necessary to execute the proposed change to Owner/Engineer for review within 21 days of receipt of the proposal request. Include a list of quantities of product(s) and unit cost(s), a statement indicating the effect the proposed changes in the Work will have on the Contract Time.
- B. Contractor initiated Change Order proposal requests: When unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Owner/Engineer. Include a statement outlining the reasons for the Change, list of quantities and unit costs along with the total amount of work.

1.05 CONSTRUCTION CHANGE DIRECTIVE

- A. When the Owner and the Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Engineer may issue a Construction Change Directive instructing the Contractor to proceed with a change in the work for subsequent inclusion in a Change Order.
 - 1. The Construction Change Directive will contain a complete description of the change in the work and designate the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.06 CHANGE ORDER PROCEDURES

- A. Upon Owner's approval of a Request for Change Order, Contractor will issue a Change Order with Engineer's concurrence for signatures of the Owner and Contractor as provided in the Conditions of the Contract.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 2613 - REQUEST FOR INTERPRETATION (RFI)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for handling and processing Requests For Information.

1.03 DEFINITIONS

- A. Definitions used in this article are not intended to change or modify the meaning of other terms in the Contract Documents.
- B. Request for Interpretation (RFI): A request for information by the Contractor to the Engineer of Record for clarification of intent of any portion of the Contract Documents after the Award of Contract and during the construction of the Project.
- C. The following are NOT Requests for Information.
 - 1. Change Orders.
 - 2. Construction Change Directives.
 - 3. Substitution Request.
 - 4. Bulletin.
 - 5. Field Order.
 - 6. Shop Drawings.
 - 7. Normal questions contained in a typical shop drawing submittal.
 - 8. Clarifications during Bidding.
- D. Day: For purpose of processing RFI's, a day is a working day and excludes weekends and holidays.

1.04 REQUESTS FOR INTERPRETATION (RFI'S) DURING CONSTRUCTION

- A. RFI's are logged-in at the Engineer's Office, not necessarily with same date as indicated by the Contractor on RFI form. The response time will commence upon the date of receipt by the Engineer.
 - 1. RFI's received on or after a Friday after 2:00 PM are to be dated the following Monday, holidays excepted.
 - 2. RFI's received on any day after 2:00 PM will be dated received the following Working Day.
- B. Requests for Interpretation (RFI): If clarification of any portion of Construction Documents is required, submit a Request for Interpretation to the Engineer of Record and the Owner's Representative in accordance with the following procedures:
 - 1. RFI Format:
 - a. Submit on a standard form developed by the Contractor.
 - b. RFI's shall be sequentially numbered; and include the following:
 - 1) Date
 - 2) Project name and number
 - 3) Contractor's name, address, telephone number and fax number.
 - 4) Description of subject and discipline (trade) in question.
 - 5) Adequate space for Engineer of Record to respond, sign, and date.
 - c. Contractor shall submit a copy of the format to the Engineer of Record and Owner's Representative at start of Project for review and comment.
- C. RFI Inquiry:
 - 1. Clearly state and completely define the issue requiring interpretation. Provide drawing and detail numbers, specification section numbers and paragraphs, sketches and other reference information.
 - 2. Provide potential solutions to issues when possible.
 - 3. Provide cost and schedule implications, if any.
 - 4. Ambiguous RFI's will be returned to Contractor without action taken.

- D. RFI Submission Process:
1. The Contractor shall submit an RFI, in writing, to Engineer of Record immediately with a copy to the Owner's Representative when any issue requiring clarification arises.
 - a. Unless specifically stated on RFI, the Engineer of Record and the Owner will assume adjustments to the Contract Amount and the Project Schedule are NOT REQUIRED.
 2. The Engineer of Record will review and respond only to RFI's received in writing from the Contractor.
 3. Submit electronic copy of each RFI and Engineer of Record response, including any supplemental drawings and additional instructions, to the Owner's Representative for record purposes.
 4. The Contractor shall allow seven (7) working days for the Engineer of Record to review and respond to the RFI.
 5. RFI's submitted to the Engineer of Record without following these submission procedures will result in rejection of the submission.
- E. RFI Log:
1. Contractor shall maintain an RFI log indicating the RFI number, subject, date, response date and impact, if any on schedule and cost.
 2. Contractor shall publish the log at least bi-monthly to the Engineer of Record and Owner's Representative.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 3113 - PROJECT COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project coordination.
- B. Employ and pay for services of a full-time project superintendent for duration of construction work.
 - 1. Provide additional administrative and supervisory personnel including services of a project manager and expeditor as required for performance of the work including coordination of subcontractors.

1.03 QUALITY ASSURANCE

- A. Project Coordinator Qualifications: Not less than five years experience performing project coordination work on projects of similar size and scope.
- B. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection and operation.
 - 1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in sequence required to obtain best results.
 - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work.
- D. Conservation: Coordinate construction activities to ensure operations are carried out with consideration given to conservation of energy, water and materials.

1.04 PROJECT COORDINATION

- A. Each contractor is responsible for coordinating its construction operations with those of other contractors and related parties. Coordinate operations with operations of other contractors, including those in other Sections and Bid Packages to ensure proper installation, connection, sequence, operation, in an efficient and orderly fashion.
 - 1. Schedule construction operations in the sequence required to obtain the best results without resulting in rework.
 - 2. Coordinate installation of components with other contractors to ensure proper performance of equipment and to maintain accessibility for required maintenance, service and repair.
 - 3. Coordinate and make provision to accommodate installation of items scheduled for later installation.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 3119 – PROJECT MEETINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project meetings including pre-construction conference, coordination meetings and progress meetings.
- B. Contractor is specifically responsible for:
1. Preparing agenda for each meeting which includes specified topics.
 2. Providing written notice of each meeting including agenda to all attendees not less than four days in advance of meeting date.
 3. Making physical arrangements for each meeting.
 4. Presiding at each meeting.
 5. Recording minutes of each meeting including but not limited to all significant proceedings, decisions, action required and persons assigned to action.
 6. Reproducing and distributing minutes of each meeting to all attendees and other parties affected by decisions made at meeting not later than three days after each meeting.

1.03 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting for the Project at project site or other convenient location no later than 15 days after execution of Agreement and prior to commencement of construction activities. Conduct meeting to review goals, responsibilities and personnel assignments.
- B. Contractor shall submit the following prior to meeting and such additional items as Engineer may direct:
1. Signed Contract.
 2. Bonds as required.
 3. Proof of insurance.
 4. Required permits.
 5. Preliminary construction schedule.
 6. List of subcontractors.
 7. Schedule of values.
 8. Preliminary payment schedule.
 9. Project directory.
 10. Safety plan and name of Safety Officer.
- C. Attendees: Owner, Engineer and its consultants, Contractor and its project manager, project coordinator and project superintendent, major subcontractors, manufacturers and suppliers. Other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- D. Agenda: Discuss items of significance that could affect progress including such topics as:
1. List of subcontractors, manufacturers and suppliers.
 2. Tentative construction schedule.
 3. Critical work sequencing.
 4. Designation of responsible personnel.
 5. Procedures for processing field decisions and Change Orders.

6. Procedures for processing applications for payment.
 7. Distribution of Contract Documents.
 8. Submittals of shop drawings, product data and samples, including that at exposed construction ceilings, coordination drawings will be required as part of the shop drawing process to facilitate the locations and finish appearances of all materials exposed to view
 9. Preparation of record documents.
 10. Use of premises.
 11. Office, work and storage areas.
 12. Temporary facilities and controls.
 13. Equipment deliveries and priorities.
 14. Safety procedures.
 15. First aid.
 16. Security.
 17. Housekeeping.
 18. Working hours both within and outside of the Building.
- E. Record meeting results and distribute copies within 24 hours to everyone in attendance and to others affected by decisions or actions resulting from each meeting

1.04 PROGRESS MEETINGS

- A. Conduct progress meetings at Project site at regularly scheduled intervals, but not less frequently than every other week. Notify Owner and Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of payment requests. Prepare construction schedule update for each meeting to discuss.
- B. Attendees: In addition to representatives of Owner, Engineer and Contractor, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to current status of the Project.
 1. Contractor's Construction Schedule: Review progress since the last meeting.
 - a. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule.
 - b. Determine how construction behind schedule will be expedited, at no additional cost to the Owner; secure commitments from parties involved to do so.
 - c. Discuss whether schedule revisions are required to ensure current and subsequent activities will be completed within the Contract Time.
 2. Review present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequence of operations
 - d. Resolution of BIM component conflicts.
 - e. Status of submittals
 - f. Status of sustainable design documentation
 - g. Deliveries.
 - h. Off-site production quotas and fabrication problems.
 - i. Access.

- j. Site utilization.
 - k. Temporary facilities and services.
 - l. Hours of work.
 - m. Hazards and risks.
 - n. Housekeeping.
 - o. Quality and work standards.
 - p. Change Orders.
 - q. Documentation of information for payment requests.
- D. Reporting: Record meeting results including agreements and disagreements, and distribute copies of minutes of each meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since previous meeting and report.
- 1. Schedule Updating: Revise construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 3300 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 – Procurement and Contracting Requirements, and Division 01 – General Requirements, are hereby made part of this Section.

1.02 SUMMARY:

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements are Included in the Following Sections:
 - 1. Payment Procedures for submitting Applications for Payment and the schedule of values.
 - 2. Project Record Documents for submitting record Drawings, record Specifications, and record Product Data.

1.03 DEFINITIONS:

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device independent and display resolution independent fixed layout document format.

PART 2 - PRODUCTS

2.01 SUBMITTAL PROCEDURES:

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.
 - a. Engineer will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- B. Shop Drawings: Prepare Project specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineer's digital data drawing files.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules
 - c. Compliance with specified standards
 - d. Notation of coordination requirements
 - e. Seal and signature of professional engineer if specified
2. Sheet Size: Except for templates, patterns, and similar full size drawings, submit Shop Drawings on sheets at least 8 1/2 x 11 inches.
3. Submit Shop Drawings as PDF electronic files.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW:

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Project Closeout and Maintenance Material Submittals:
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S ACTION:

- A. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Engineer.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Engineer without action.

END OF SECTION

SECTION 01 5526 - TRAFFIC CONTROL

PART I – GENERAL

1.01 DESCRIPTION

- A. Protect, regulate, warn, guide, and maintain traffic through and around the Construction Influence Area (CIA). Protect the construction work area during the life of the contract.
- B. Furnish, install, light, operate, move, clean, preserve, maintain, cover and remove traffic control devices.
- C. All temporary traffic control devices supplied by the Contractor will remain the property of the Contractor.
- D. Temporary traffic control devices include but are not limited to signs and posts.
- E. All temporary control devices must meet the design requirements of the MMUTCD, Part VI, in addition to the requirements of this section.
- F. The Contractor must furnish the Engineer with certification that the materials and devices conform to these specifications. This certification does not waive inspection, sampling, or testing of materials and devices, as determined by the Engineer.

PART 2 – PRODUCTS

2.01 TEMPORARY SIGNS

- A. Sign Panel and Supports. Sign panel materials and supports must meet NCHRP-350 crashworthy requirements.
- B. Reflective Sheeting. Prismatic grade reflective sheeting must meet the requirements for ASTM D 4956 Type VII prismatic sheeting or higher. All prismatic orange reflective must be florescent. Engineer grade reflective sheeting must meet the requirements for ASTM D 4956 Type I engineer grade sheeting.
- C. Legend. Legend must be fabricated and applied as detailed on the plans. The lettering and spacing on all signs must conform to the *FHWA Standard Alphabets for Highway Signs and Pavement Markings*.

2.02 CHANNELIZING DEVICES

Channelizing devices include, but are not limited to, cones, drums, Type III barricades and temporary concrete barrier. Reflective sheeting for all channelizing devices must meet the requirements of ASTM D 4956 Type III high intensity sheeting.

- A. Cones. Traffic cones must have a minimum height of 28 inches. The manufacturer must supply certification to the purchaser that the cone meets NCHRP-350 crashworthy requirements.
- B. Drums. Drums must be composed of a low density polyethylene plastic. High density polyethylene plastic is not permitted. The manufacturer must supply certification to the purchaser that the drum meets NCHRP-350 crashworthy requirements. Reflectorized sheeting used on drums must meet the requirements of ASTM D 4956 flexible Type III high intensity and must be 5-inch stripes. Drum striping design must conform to Standard Plan 125-R Series.
- C. Drums with Lights. Drums with warning lights attached must be approved by the FHWA as meeting NCHRP-350 crashworthy requirements
- D. Type III Barricades. Type III Barricades consist of three horizontal reflectorized rails, supports and warning lights. When called for, both sides of the rails must be reflectorized. Sheet the rails with orange and white diagonal striped ASTM Type III high intensity sheeting. All newly manufactured or purchased Type II Barricades must meet NCHRP-350 crash worthy criteria.

- E. Warning Lights. Warning lights must have light emitting diode technology and meet the current *Institute of Transportation Engineers Purchase Specification for Flashing and Steady Burn Warning Lights*. Lights must be powered by two 6-volt or four D-cell batteries and maintained. The following types of warning lights are permitted:
1. Type A-Low intensity flashing warning light, yellow lens, battery operated.
 2. Type B-High intensity flashing warning light, yellow lens, battery operated. Type B lights must have a visor affixed which will shield the lens from overhead sunlight.
 3. Type C-Steady burn warning light, yellow lens, battery operated.

PART 3 EXECUTION

3.01 CONTRACTOR NOTIFICATION

Notify the Engineer before starting work or installing traffic control devices on the project. Provide sufficient time so that arrangements may be made for traffic maintenance.

3.02 CONTRACTOR DAMAGED HIGHWAY FACILITIES

Restore all Contractor damaged facilities and devices. Furnish, install, and operate all traffic control devices required to warn and protect traffic from Contractor damaged facilities. All costs associated with this work will be borne by the Contractor.

3.03 CHANGES IN STAGE CONSTRUCTION PLANS

Provide reasonable notice, in writing to the Engineer, before making changes in stage construction. The Department will:

- A. Approve all changes in stage construction in writing.

3.04 DEFICIENT TRAFFIC CONTROL OPERATIONS

The Engineer will submit written notification of deficient, inadequate, or improperly placed traffic control devices, or unsafe conditions within the CIA. A statement of the required corrective action will accompany the notice. The Engineer may take the following action(s) in the event of failure to take immediate correction action:

- A. Stop work on the project until corrective action is taken.
- B. In interest of public safety, order corrective action by outside forces. All costs associated with this work will be borne by the Contractor.

3.05 PLACING TRAFFIC CONTROL DEVICES

- A. Provide traffic control devices meeting the quality requirements in the current addition of the Quality Standards for Work Zone Traffic Control Devices published by the American Traffic Safety Services Association (ATSSA).
- B. Apply and place all traffic control devices within the CIA limits according to the MMUTCD, as shown on the plans, or as directed in writing.
- C. Display only traffic control devices appropriate to conditions. Cover, remove, modify, or move existing temporary or permanent signs that have legends that are not applicable. When temporary signs are not in use, placing them with the sign face parallel to traffic is not acceptable.
- D. Make daily inspections of the traffic control devices at a frequency that will insure all devices are in place, properly positioned, aligned and oriented. During periods of inactivity inspect at a frequency agreed to by the Engineer. Record these inspections; make the records available to the Engineer biweekly. The Department will take possession of the inspection records at completion of the project.

- E. The Contractor will be responsible for actions of subcontractors regarding the condition, placement, maintenance, and removal of traffic control devices required on the project.
- F. Remove temporary traffic control devices from the project when no longer required.

3.06 TEMPORARY SIGNS

- A. Erect temporary construction signs as directed and according to the following:
 - 1. Ground driven or portable supports are acceptable.
 - 2. Mount signs at a minimum bottom height of 5 feet above the near edge of pavement.
 - 3. Mount signs at a minimum bottom height of 7 feet above ground if erected behind the curb or within 6 feet of a pedestrian walkway.
 - 4. If a secondary sign is required below the primary sign, mount it with bottom height 1 foot less than the 5 or 7 foot height specified.
 - 5. Erect signs with supports vertical and the legend or symbol horizontal.
- B. Light construction warning signs during hours of darkness with one Type A warning light equipped with a one-way lens. Securely fasten the light to the top of the sign on the side nearest the traffic lane. Type A warning lights are not required on temporary construction signs with prismatic retro-reflective sheeting.
- C. Use flexible roll-up signs with fluorescent, prismatic retro-reflective sheeting only during daylight hours in signing sequences for moving operations. The Engineer must approve use of flexible roll-up signs.
- D. Do not use mesh signs.
- E. The Engineer will approve such temporary or permanent signs for the safety and direction of traffic. The placing agency will be responsible for such signs, as prescribed herein.

3.07 SIGN COVERS

- A. Cover the entire front of the sign panel for temporary and permanent signs mounted on fixed supports. For permanent signs, mount the sign coverings by approved methods that will not damage the existing sign sheeting. Do not apply fastening devices such as nails, staples, screws, or adhesive materials directly on the reflective sheeting. Use spacers providing 2 inches of air space between the cover and the sign face to protect the sheeting from damage. Do not use burlap or similar material to cover signs.
- B. Install sign covers on Type I signs shown in the proposal or staging plans so that all of the conflicting information is obscured. Submit shop drawings of the Type I sign covers to the Engineer for approval before covering any Type I sign on the project.
- C. Do not use sign plaque overlays that alter part of a sign's legend or symbol.

3.08 SIGN SUPPORTS

- A. Meet MDOT and current NCHRP crash worthy criteria.
- B. Place and construct sign supports to resist swaying, turning, or displacement. Steel posts may be painted or galvanized.
- C. Mount construction signs on portable sign support standards only when fixed supports are not possible.

3.09 SUPPLEMENTAL WEIGHTS

- A. Maintain traffic control devices upright and in proper alignment during use. When supplemental weights are necessary to achieve stability, use sand bags or an approved alternate.

3.10 TYPE III BARRICADE

- A. Use Type III barricades to accentuate delineation or warning and for total or partial road closures. When used for a complete road closure, extend the barricades completely across a roadway and its shoulders or from curb to curb.
- B. Light Type III barricades during hours of darkness with two light-weight Type C warning lights securely fastened to the uprights. Place all construction signs used at the Type III barricades behind the barricades on their own supports. Place the bottom of the signs above the top rail of the barricade. Stripes on the retro-reflective sheeting must slope downward in the direction traffic is to pass. Place sheeting on both sides of Type III Barricades when traffic passes from both directions.
- C. Do not place Type III barricades parallel to approaching traffic.
- D. When the Department prohibits through traffic, use Type III barricades including the specified construction signs and lights. Arrange barricades and erect signs to permit the passage of local traffic and effectively discourage the passage of through traffic. Install a sign with the appropriate legend concerning permissible use by local traffic.

3.11 MAINTAINING LIGHTS

- A. Position and maintain Type A and Type C lights to be visible on a clear night from a distance of 3000 feet. Maintain Type B high intensity lights to be visible on a sunny day from a distance of 1000 feet when viewed without the sun directly on or behind the light. Replace batteries when the lights do not meet these requirements. Provide and maintain Type C LED lights that meet or exceed all requirements in the MMUTCD. Maintain the intensity requirement of 2 candela in the field. This requirement does not preclude the Engineer from determining that a battery change is necessary.
- B. Inspect each light in use immediately before initial use and at least once every seven days after that. Service if necessary. Supply the Engineer with a written certification of maintenance on electrical devices at least once every seven days. Provide certification in the following format and include all types of battery-operated warning lights and other Contractor-furnished electrical devices. Include a written summary on the number of warning lights, by type, which are currently operating on the project.

3.12 CLEANING TRAFFIC CONTROL DEVICES

- A. Clean the entire or partial inventory of plastic drums, signs, barricades, and attached lights in operation on the project as directed by the Engineer. Adjust cleaning frequency to the exposure to unfavorable environmental conditions, and the dirt accumulated on the devices.

END OF SECTION

SECTION 01 7113 - MOBILIZATION

PART I GENERAL

1.01 DESCRIPTION

Mobilization consists of preparatory work and operations, including, but not limited to the following:

- A. The movement of personnel, equipment, supplies, and incidentals to the project site.
- B. The establishment of the Contractor's offices, buildings, and other facilities to work on the project.
- C. Other work and operations that must be performed.
- D. Expenses incurred, prior to beginning work on the various contract items on the project site.
- E. 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.
- F. Contractor to provide and maintain a sufficient number of portable temporary toilets in locations approved by the owner. They must comply with all Federal, State and local code requirements. The Contractor must maintain the temporary toilets in a sanitary condition at all times and must remove them when the work under this contract is complete. The Contractor's employees are not allowed to use any existing toilet facility.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

SECTION 01 7423 - FINAL CLEANUP

PART I GENERAL

1.01 DESCRIPTION

- A. Removal and dispose of all debris; including excess soil and all other rubbish from within the project limits. Place topsoil, seed and mulch all disturbed areas.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION

- A. Project cleanup will be an ongoing operation. Fill all holes and ruts resulting from construction operations with approved materials; compact, level, and restore.
Clean out any existing culverts, sewers, or drainage structures that contain sediment or debris from the construction operation.
The related work of preparing the foundation, furnishing and placing 4" topsoil, sowing the seed, and placing straw mulch or mulch blankets.

END OF SECTION

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project closeout.

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following, listing exceptions in the request:
 - 1. In the Application for Payment that coincides with, or first follows the date Substantial Completion claimed, show 100 percent completion for the portion of Work claimed as substantially complete. Include supporting documentation for completion as required and a statement showing an accounting of change to the Contract Sum. Comply with requirements of the General Conditions.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specified warranties, maintenance agreements, final certifications and similar documents as required by the General Conditions.
 - 4. Obtain and submit releases enabling Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 - 5. Submit record documents including maintenance manuals, damage or settlement survey, property survey and similar final record information.
 - 6. Complete final cleaning requirements.
- B. Inspection Procedures: On receipt of a request for inspection, Engineer will either proceed with inspection or advise Contractor of unfilled requirements. Engineer will prepare the Certificate of Substantial Completion following inspection, or advise Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 1. Engineer will repeat inspection when requested and assured the Work has been substantially completed.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL REVIEW

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following, listing exceptions in request:
 - 1. Submit final payment request with releases and supporting documentation not previously submitted and accepted. Comply with requirements of the General Conditions.
 - 2. Submit an updated final statement, accounting for final additional changes to Contract Sum.
 - 3. Submit a certified copy of Engineer's final inspection list of items to be completed or corrected, stating each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by Engineer.
 - 4. Submit record drawings and similar final record documents.
 - a. Each drawing shall be labeled "Project Record", dated and signed by the Contractor.
 - b. Each project record document shall be labeled "Project Record Document".

5. Submit consent of surety to final payment.
 6. Submit evidence of final continuing insurance coverage complying with insurance requirements.
- B. Re-inspection Procedure: Engineer will re-inspect Work upon receipt of notice the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Engineer.
1. Upon completion of reinspection, Engineer will prepare Certificate of Final Acceptance, or advise Contractor of incomplete Work or of obligations not been fulfilled but required for final acceptance.
 2. If necessary, reinspection will be repeated for final acceptance.

SECTION 02 4113.13 - REMOVE PAVEMENT

PART 1 GENERAL

1.01 DESCRIPTION

- A. This work shall consist of removing and properly disposing of bituminous surface and base of any thickness from any aggregate base without the removal of the aggregate base.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

- A. The work of removing bituminous pavement shall conform to 2020 Michigan Department of Transportation Standard Specifications for Construction Section 204.04.A.2 Removing Miscellaneous Structures And Materials except as modified herein.
- B. Cutting of bituminous surface for removal shall be by saw or other methods approved by the Engineer.
- C. Butt joints shall be trimmed just prior to bituminous paving, and will not be paid for separately.

END OF SECTION

SECTION 31 2500 - EROSION CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

- A. This work shall consist of the construction and maintenance of erosion controls required to minimize the erosion of soil and the sedimentation of water courses as shown on the project plans or at the direction of the Engineer.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. All materials used shall meet the 2020 Michigan Department of Transportation Standard Specifications for Construction:

Coarse Aggregate, 6A	902
Granular Material Class II	902
Dense-Graded Aggregate 21AA, 22A	902
Open-Graded Aggregate, 34R.	902
Fencing Materials	907
Culvert Pipe	909
Geosynthetics	910
Rip Rap	916
Heavy Rip Rap	916
Coarse Aggregate, 3X1	916
Cobblestone	916
Temporary Plastic Sheet	916
Sand and Stone Bags	916

PART 3 EXECUTION

3.1 CONSTRUCTION METHODS

- A. This work shall be done according to 2020 Michigan Department of Transportation Standard Specifications for Construction Section 208. Soil Erosion and Sedimentation Controls except as modified herein.

END OF SECTION

SECTION 32 1123 - AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 DESCRIPTION

- A. This work shall consist of an aggregate base course constructed on an existing aggregate surface or on a prepared subbase or subgrade.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The material used for this work shall meet the requirements of the following 2020 Michigan Department of Transportation Standard Specifications for Construction:

DENSE-GRADED AGGREGATE 21AA, 21A, 22A.....902

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

- A. This work of constructing Aggregate Base Course shall conform to the 2020 Michigan Department of Transportation Standard Specifications for Construction Section 302.03 AGGREGATE BASE COURSES except as modified herein.
- B. Aggregate base courses shall not be placed when there are indications that the mixture may become frozen before the maximum unit weight is obtained, and in no case shall be placed on a frozen subgrade or subbase.
- C. The subbase shall be shaped to the crown and grade specified in the Plans and maintained in a smooth condition. If, in the opinion of the Engineer the subgrade, subbase or aggregate base becomes damaged due to the Contractor's equipment or by local traffic, the subgrade, subbase, and base course shall be restored by the Contractor as directed by the Engineer to the condition required by the Plans and Specifications at no extra cost to the Owner. Restoration may include removal of the aggregate or subbase courses for examination of the subgrade, including performing undercuts, all at the Contractor's expense.
- D. No aggregate base shall be placed until the subbase has been compacted to not less than 95 percent per 2020 Michigan Department of Transportation Standard Specifications for Construction Section 301.03 and a "Permit to Place" has been issued by the Engineer. The aggregate base course shall be compacted to not less than 98% of the unit weight, at the optimum moisture content, obtained by AASHTO T 180 test method 2020 Michigan Department of Transportation Standard Specifications for Construction Section 302.03.
- E. Aggregate base and surface courses shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material and which is approved by the Engineer.
- F. All Structures, including manholes, valve boxes, inlet structures and curbs shall be protected from damage. Manholes & inlet structures shall be maintained clean of construction debris and properly covered by the Contractor at all the times during the construction.

3.02 TESTING

- A. The Contractor before Aggregate Base construction commences shall provide the Engineer with the source and location of the material to be used so that a Sieve Analysis and Proctor may be developed by an independent testing firm 48 hours prior to placement of Aggregate Base material. This initial cost will be to the Client. Cost of in place compaction testing (Nuclear Density Method) will be to the Client. If the Contractor elects during the course of construction, to change the source and/or location of an approved material, the Contractor shall pay for all Sieve Analysis and Proctors to complete the construction of the Aggregate Base. Forty-eight (48) hours notification will be required to the Engineer to collect and deliver samples to an independent testing firm before placement. Any material placed by the Contractor without approval will be removed. If in the opinion of the Engineer, the material differs from the approved material, the Contractor shall test material at the Contractor's expense.

END OF SECTION

SECTION 32 1219 - POROUS ASPHALT PAVEMENT

PART 1 GENERAL

1.01 DESCRIPTION

- A. Porous asphalt pavement is a paved surface and subbase comprised of asphalt, gravel, and stone, formed in a manner resulting in a permeable surface. The various layers, called "courses," have the potential for stormwater detention. Stormwater which passes through the pavement may completely or partially infiltrate the underlying soil, the excess being collected and routed to an overflow facility through perforated underdrain pipes. The pavement may also be designed to receive off-site runoff.

1.02 OTHER TERMS USED TO DESCRIBE

- A. Pervious Pavement Permeable Pavement

1.03 POLLUTANTS CONTROLLED AND IMPACTS

- A. When properly designed and carefully installed, porous pavement has load bearing strength, longevity, and maintenance requirements similar to conventional pavement. Some of the possible benefits over conventional pavement include: removal of fine particulates and soluble pollutants through soil infiltration; attenuation of peak flows; reduction in the volume of runoff leaving the site and entering storm sewers; reduction in soil erosion; and groundwater recharge. The degree of pollutant removal is related to the amount of runoff which exfiltrates the subsoils. This practice may also help reduce land consumption by reducing the need for traditional stormwater management structures.
- B. There is a potential risk to groundwater due to oils, greases, and other substances that may leak onto the pavement and leach into the ground. Pre-treatment of stormwater is recommended where oil and grease or other potential groundwater contaminants are expected.

1.04 APPLICATION

- A. Land Use
Mostly urban, urbanizing and transportation
- B. Soil/Topography/Climate
This practice should only be used on sites with gentle slopes, permeable soils, and relatively deep water table and bedrock levels. Soils should be well or moderately well drained. Since subgrade soils will differ in their capacity to infiltrate and percolate water, the design of porous pavement will vary slightly based on soil type. See the "Specifications" section of this BMP.

Meteorological conditions will affect the design infiltration rate for the top pavement course, and the volume necessary in the reservoir course. Meteorological conditions will also affect frost penetration depth.

This practice is not recommended for barren areas subject to wind erosion.

- C. When to Apply
Apply when the soil, topography and climatic conditions listed above can be met.
- D. Where to Apply
Apply in low-volume parking lots and roads, and in high activity recreational areas like basketball and tennis courts or playground lots. The area is generally limited to 0.25 to 10.0

acres and generally serves only a small section of the watershed. This BMP can also accept rooftop and adjacent parking lot runoff.

1.05 RELATIONSHIP WITH OTHER BMPS

- A. Subsurface Drains may collect water infiltrating the reservoir course of porous asphalt pavement and route it to an Extended Detention Basin or Infiltration Basin. This may be necessary for soils having marginal infiltration capabilities. The use of subsurface drains may diminish the pollutant removal efficiency of this BMP by not allowing the water to fully exfiltrate the soil. Subsurface drains may also be installed but allowed to remain capped, acting as a backup system if the porous pavement becomes clogged.

1.06 SPECIFICATIONS

- A. General Considerations:
As shown in Exhibit 1, a typical porous asphalt pavement consists of a top porous asphalt course, a filter course, a reservoir course (designed for runoff detention and frost penetration), and existing soil or subbase material.

The top porous asphalt course is an open-graded asphalt concrete surface course approximately 2-4 inches thick. This course consists of porous asphalt concrete containing little sand or dust, with a pore space of approximately 16% (as compared to 2-3% for conventional asphalt concrete). Strength and flow properties of porous asphalt concrete are similar to conventional asphalt concrete.

The filter course is a 1-2-inch thick layer of 0.5-inch crushed stone aggregate. In addition to providing some filtration (limited by the relatively large pore space), the filter course also provides stability for the reservoir course during application of the asphalt mix.

The reservoir course is a base of 1.5-3-inch stone of a depth determined by the storage volume needed. In addition to transmitting mechanical loads, the reservoir course stores runoff water until it can infiltrate into the soil. On slopes, reservoir courses at the higher end are not credited with storage capability due to lateral drainage.

Where soils have low permeability, the reservoir course thickness should be increased to provide additional storage. With soils composed primarily of clay or silt, the infiltration capacity may be so slow that the soil is unacceptable as a subgrade, necessitating replacement by suitable borrow material. If the natural material beneath is relatively impermeable, drainage may have to be provided. The drainage may take the form of subsurface drains, french drains or dutch drains.

Another 2-inch filter course can be applied below the reservoir course to allow additional infiltration. Below the filter course, we recommend a Filter fabric.

Under the filter fabric is the undisturbed soil.

1.07 PLANNING CONSIDERATIONS:

- A. Soil tests should be conducted to determine permeability, load bearing capacity, resistance to frost heave, swell and shrink. Soils with a permeability rating of A or B are probably more suitable than soils with a permeability rating of C. Evaluate the soils and drainage area to estimate the amount of water that may enter the porous pavement, and how fast this water will percolate through the soil.
Underlying soils should have a minimum infiltration rate of 0.27 in/hr, or 0.52 in/hr for full exfiltration systems.

Plan to design any necessary Diversions in conjunction with the porous pavement. Diversions should be placed around the perimeter of the porous pavement to keep runoff and sediment completely away from the site both before and during construction.

Do *not* store heavy equipment on the area in which porous asphalt pavement will be laid. Heavy equipment will compact soils and reduce the soil's infiltration.

1.08 DESIGN CONSIDERATIONS:

Porous asphalt pavement systems should be designed by registered professional engineers.

A. Slope:

The slope of porous asphalt pavement should not exceed 5% and is best when as flat as possible. If low spots do develop in the parking lot, it may be advisable to install drop inlets to divert runoff into the stone reservoir more quickly.

B. Depth:

The depth of the stone reservoir should be such that it drains completely within 72 hours. This allows the underlying soils to dry out between storms (improving pollutant removal) and also preserves capacity for the next storm. If the site has marginal soils for infiltration (e.g. loams, silt loams), or covers a wide area, it may be prudent to design the reservoir to drain within 48 hours.

C. Residence Time:

Care should be taken in spacing the underdrain network in partial exfiltration systems. If perforated underdrains are too close together, runoff may be collected too efficiently to provide the exfiltration needed for high pollutant removal. As a general design rule, a minimum residence time of 12 hours should be a target for the design storm.

D. Effects of Frost:

If frost penetrates deeper than the thickness of the pavement and reservoir courses, and the subgrade soil has potential for frost heaving, it is recommended that additional material be added to the reservoir course to below the frost zone. If the subsurface freezes, the effectiveness of this BMP is diminished.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION CONSIDERATIONS:

- A. Before the entire development site is graded, the planned area for the porous pavement should be roped off by Construction Barriers to prevent heavy equipment from compacting the underlying soils.
- B. Install Diversions as needed to keep runoff off the site until the porous pavement is in place.
- C. Excavate the subgrade soil using equipment with tracks or over-sized tires. Narrow rubber tires should be avoided since they compact the soil and reduce its infiltration capabilities.
- D. After excavation is complete, the bottom and sides of the stone reservoir should be lined with filter fabric to prevent upward piping of underlining or underlying soil. The fabric should be placed flush with a generous overlap between rolls. Follow manufacturer's specifications.
- E. Clean, washed 1.5-3-inch aggregate should be placed in the excavated reservoir in lifts, and lightly compacted with plate compactors to form the reservoir or base course. Unwashed

stone has enough sediment to pose a clear risk of clogging at the soil/filter cloth interface. The minimum depth of this layer is usually 9 inches.

- F. A 1-2-inch thick layer of 0.5-inch stone should be placed over the reservoir or base course, and manually graded to plan specifications.
- G. Add the porous asphalt layer (2-4 inches thick), but only when the air temperature is above 50°F and the laying temperature is between 230-260°F. Failure to follow these guidelines can lead to premature hardening of the asphalt and subsequent loss of infiltration capacity.
- H. Asphalt used in porous asphalt concrete ranges from a 50% to 100% penetration grade, depending upon the ambient temperatures and viscosity characteristics desired. Generally, the grades used in a given locality for conventional asphalt concretes will suffice for porous asphalt as well. However, the porous product is more subject to scuffing, which occurs when the front wheels of stationary vehicles are turned. It is therefore suggested that for porous asphalt, an 85 to 100% penetration grade be used.
- J. The percent of asphalt should be specified between 5.5 and 6, based on the total weight of the pavement. The lower limit is to assure adequately thick layers of asphalt around the stones, and the upper limit is to prevent the mix from draining asphalt during transport.
- K. To avoid damage due to photo-oxidative degradation of the asphalt, the asphalt coatings on the aggregate surfaces should be thicker than usual. In this case, the asphalt can form skins or otherwise be mildly degraded without significant loss of cementing properties.
- L. Roll the asphalt when it is cool enough to withstand a ten-ton roller. Normally, only one or two passes of the roller are necessary. More frequent rolling can reduce the infiltration capabilities on the open-graded asphalt mix.
- M. After rolling is complete, all traffic should be kept out of the porous pavement area for a minimum of one day to allow proper hardening.

3.03 AFTER CONSTRUCTION

- A. Stabilize the surrounding area and any established outlet following specifications in the Seeding and Mulching or Sodding BMPs. This will prevent sediment from entering the porous pavement.
- B. Where applicable, remove temporary Diversions after vegetation is established.
- C. Post signs to prevent vehicles from entering the area with muddy tires. If muddy vehicle access cannot be prevented, a temporary Access Road should be installed.
- D. Although snow and ice tends to melt more quickly on porous pavement, it may still be necessary to apply de-icing compounds to melt snow and ice. Do not use sand or ash because they may cause clogging of the pavement.

3.04 MAINTENANCE

- A. All porous pavement should be inspected several times in the first few months after construction, and at least annually thereafter. Inspections should be conducted after large storms to check for surface ponding that might indicate local or widespread clogging. If severe clogging occurs, the entire structure may have to be replaced.

The porous pavement surface should be vacuum swept at least four times per year, followed by high- pressure jet hosing to keep the asphalt pores open.

Spot clogging of the porous pavement layer can be relieved by drilling half-inch holes through the porous asphalt layer every few feet. In cases where clogging occurs in a low spot in the pavement, it may be advisable to install a drop inlet to route water into the stone reservoir.

Potholes and cracks can be repaired using conventional, non-porous patching mixes as long as the cumulative area repaired does not exceed 10% of the parking lot area.

3.05 ADDITIONAL CONSIDERATIONS

A. Safety:

Porous pavement overlays on conventional surfaces prevent many wet skidding or hydroplaning accidents. For safety application, a 3/4-1-inch layer over normal dense pavement is used to provide rapid lateral surface drainage.

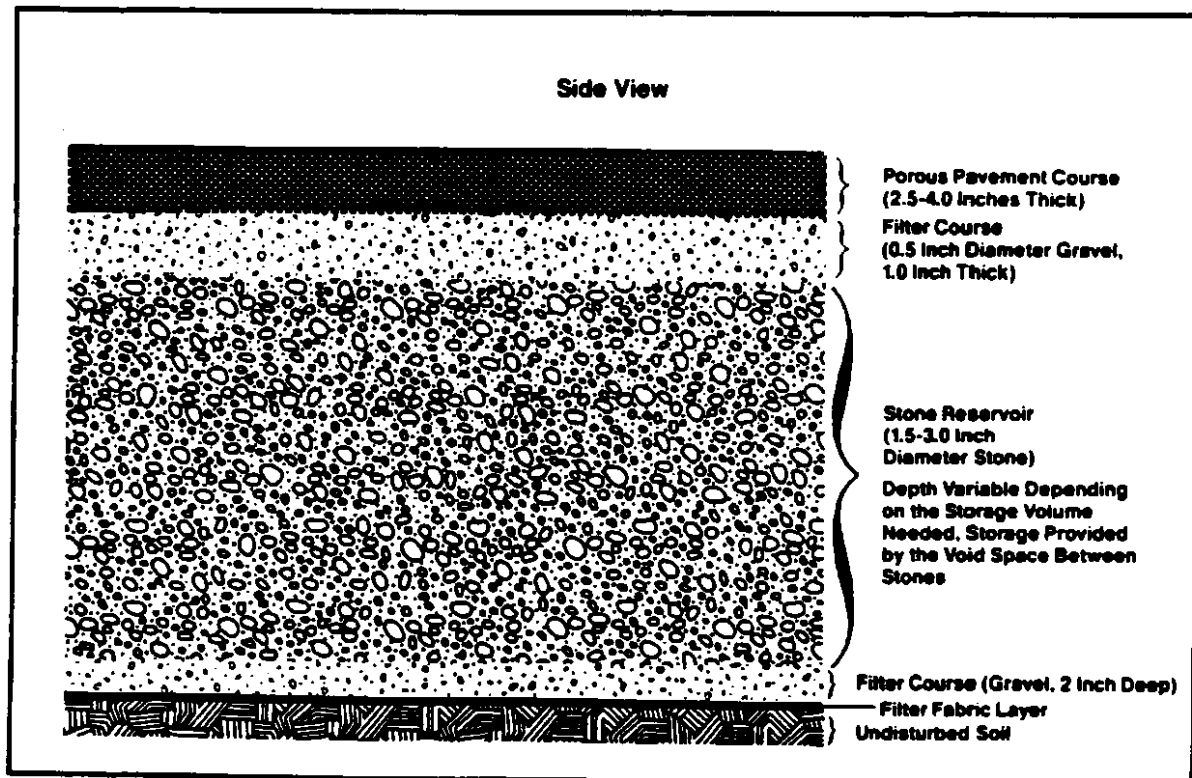
The visibility of pavement markings is improved on porous/modular pavement because of the rapid removal of water, and because the marking material penetrates the voids to present an oblique view. The enhanced visibility of pavement markings would be an important factor in preventing accidents during storms.

Exhibits

Exhibit 1: Design Schematic for Porous Pavement. Source: City of Rockville, Md., as copied from "Water Resources Protection Technology: A Handbook of Measures to Protect Water Resources in Land Development." The Urban Land Institute. 1981.

Exhibit 1

Schematic of Typical Porous Pavement Section



Source: City of Rockville, Md., as copied from "Water Resources Protection Technology: A Handbook of Measures to Protect Water Resources in Land Development." The Urban Land Institute. 1981.

SECTION 32 1723 - PERMANENT PAVEMENT MARKINGS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This work shall consist of furnishing and applying retro-reflective permanent pavement markings according to the current Michigan Manual of Uniform Traffic Control Devices. All markings, shapes, spacing, and dimensions must conform to the MDOT Pavement Marking Typical Plans or as directed by the Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All materials shall conform to current 2020 Michigan Department of Transportation for Construction Standard Specifications for Construction, Section 811.02.

Glass Beads.....	920
Waterborne Marking Material.....	920
Regular Dry Marking Material.....	920
Epoxy Pavement Marking Materials.....	920
Cold Plastic Pavement Marking Material.....	920
Thermoplastic Pavement Marking Material...	920
Raised Pavement Markers.....	920

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

- A. All construction, application, temperature and seasonal restrictions shall conform to the 2020 Michigan Department of Transportation for Construction Standard Specifications for Construction, Section 811.03.
- B. Prepare new Portland cement concrete (PCC) surfaces and PCC surfaces free of oil drips, residue, debris, and temporary or permanent markings by removing the curing compound from the area required for pavement markings.
- C. Prepare existing HMA or PCC surfaces that do not have existing markings by scarifying the marking area using non-milling grinding teeth or shot blasting. The Engineer will allow the use of water blasting to scarify the marking area on PCC surfaces.
- D. An approved concrete sealant shall be placed over scarified area after recommended time per pavement marking manufacturer.

END OF SECTION