



THE CHARTER COUNTY OF WAYNE, MICHIGAN  
**REQUEST FOR PROPOSAL  
FOR  
Iron Belle Trail Construction  
In Van Buren Township**

CONTROL NO. 37-20-118

RFP TIMETABLE

ACTION	DATE	TIME
RFP Issue Date	September 23, 2020	
Pre-Proposal Conference*	October 8, 2020	10 a.m.
Proposer's Questions Due	October 15, 2020	
Responses to Proposer's Questions	Week of October 19	
Oral Presentations*	n/a	
Proposals Due	October 29, 2020	2 p.m.
Notice to Award**		
Contract Start Date**		

\* If Necessary

\*\* Estimated Dates

**Procurement Contact:** Scott Daniel, Strategic Sourcing Analyst  
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**Pre-Proposal Meeting Location:** 50901 S. I-94 Service Drive  
Belleville, MI 48111

**(Non- Mandatory)** October 8, 2020 at 10 a.m.

**Description:** The County of Wayne is requesting proposals for the completion of portions of the Iron Belle Trail in Van Buren Township.

A copy of this RFP may be obtained from the BidNet Direct website (formerly MITN.info) at <https://www.bidnetdirect.com>, until the deadline date and time noted above.



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# PART 1 – REQUEST FOR PROPOSAL (RFP)

## SECTION 1.0 – INTRODUCTION & INSTRUCTIONS

### 1.1 Introduction/Background

**INTRODUCTION:** Through this Request for Proposal (RFP), the Charter County of Wayne (County) hereby invites businesses who meet the qualifications and specifications set forth herein to submit proposals to complete portions of the Iron Belle Trail in Van Buren Township.

**GENERAL WAYNE COUNTY INFORMATION:** Situated in the heart of the Great Lakes region along the beautiful Detroit River, Wayne County is the 19th most populous county in the United States. With 43 distinct communities including the automotive capital of the world - Detroit, Wayne County is rich in history, culture, arts, and world-class amenities. We take pride in being one of the most diverse counties in the United States; a place where different cultures come together to offer a truly cosmopolitan experience.

Wayne County offers a first-class business environment, a top-rated international airport, diverse residential areas, expansive parks, and a multitude of recreational and cultural activities. We are home to several major universities including Wayne State, the University of Michigan-Dearborn, and the University of Detroit-Mercy. We have several award-winning secondary and primary schools, as well as numerous community colleges and vocational schools. We are also home to the Detroit Symphony Orchestra, Michigan Opera Theater, Detroit Institute of Arts, the Henry Ford, and dozens of theaters, art galleries and concert halls. With hundreds of musical and cultural events every year, Wayne County is Michigan's cultural epicenter.

**SPECIFIC BACKGROUND INFORMATION:** This proposal is to complete portions of the Iron Belle Trail in Van Buren Township. The Iron Belle Trail is an initiative from the State of Michigan which is attempting to establish a bicycling and a hiking trail from Iron Mountain in the western Upper Peninsula of Michigan to Belle Isle in Detroit. A portion of the hiking trail is planned to run through Van Buren Township and we are currently working with a non-profit group called the Huron Waterloo Pathways Initiative to raise public and private funds to construct this portion of the trail.

We have already received approximately \$500,000 for engineering and trail construction for the eastern portion of the route and anticipate construction during the 2020 construction season. The western portion of the route connects to the Border to Border trail in Washtenaw County at the intersection of Rawsonville Road and Grove Road. After crossing to the east side of Rawsonville Road, the trail is planned to extend north on Rawsonville to the 1-94 South Service Drive, then east along the 1-94 South Service Drive to the entrance to Van Buren Park.

The trail then extends south and east through Van Buren Park and is proposed to cross a drain and continue along Denton Road until the trail enters the City of Belleville. The County is currently working with a professional engineering group PEA to perform a preliminary engineering study on this section of the route.



This preliminary engineering study will identify segments of the trail so the project can be completed in a phased manner. While we recognize that the \$500,000 will not complete the entire trail, we are hoping that when our preliminary engineering study is completed, we will have a more specific stretch of trail to complete along this proposed area. This entire section of the trail is located in LMI block groups and is an eligible activity for CDBG funding. Having a pedestrian trail benefits LMI residents in this area in several ways. It provides a safe pathway which connects these LMI areas to an Ann Arbor Transit Authority bus stop at the Lakewood Shopping Center which is located at Rawsonville Road and the 1-94 South Service Drive. It also connects LMI-population to the sidewalk-network-along Belleville-Road-which-provides access to employment as well as a retail district which meets their daily needs.

## 1.2 Objective

The general objectives of this solicitation are the following:

- competitively award a contract
- ensure there is a fair process at every step of the procurement process
- to fulfill the purchase request in a timely manner
- ensure that taxpayers dollars are spent wisely

## 1.3 Overview of Solicitation (RFP) Document

The solicitation is composed of the following 2 parts:

### **PART 1: REQUEST FOR PROPOSAL**

- Section 1.0: INTRODUCTION, OVERVIEW, INSTRUCTIONS: Specifies the information regarding the requirements of the solicitation process.
- Section 2.0: MINIMUM QUALIFICATIONS: Specifies the requirements a proposer must meet in order to be considered for evaluation.
- Section 3.0: SCOPE OF WORK: Sets forth a description of the required completion of portions of the Iron Belle Trail in Van Buren Township.
- Section 4.0: PROPOSAL EVALUATION, SELECTION & AWARD PROCESS: Includes information on how proposals will be evaluated, selected and awarded.

### **PART 2: SUPPLIER SUBMITTAL REQUIREMENTS (CHECKLIST)**

- Section 5.0: REQUIRED DOCUMENTATION AND FORMS: Proposer will submit the required documentation and complete the requisite forms that will be utilized in determining whether the Proposer is a responsive and responsible Proposer that has the capacity and capability to deliver and provide products under this agreement.



#### **1.4 Contact with Wayne County Personnel**

In order to create a more competitive and unbiased procurement process, the County has designated a single point of contact for the duration of this solicitation. From the issue date of this proposal, until a Successful Proposer is selected, all requests for clarification or additional information regarding this RFP, or contact with County personnel concerning this RFP or the evaluation process must be solely to the contact person listed on the cover page of this RFP.

If it is discovered that a Proposer contacted and received information regarding this Solicitation from any Wayne County personnel other than the person specified above, the Wayne County Procurement Director, in his/her sole discretion may disqualify its proposal from further consideration. Only those communications made by the Procurement Department contact in writing will be binding with respect to this RFP.

If it is later discovered that a violation in regard to this section has occurred, the County may reject any proposal or terminate any contract awarded pursuant to this RFP.

#### **1.5 Wayne County Rights & Responsibilities**

Wayne County has the right to amend this RFP by one or more written addenda. Wayne County is responsible only for that which is expressly stated in the solicitation document and any authorized written addenda.

Should any such addenda require additional information not previously requested, Proposer's failure to address the requirements of such addenda may result in the Proposal not being considered, as determined in the sole discretion of Wayne County. Wayne County is not responsible for and shall not be bound by any representations otherwise made by any individual acting or purporting to act on its behalf, other than the Procurement Director, Procurement Director's designee, and/or stated contact for the solicitation.

It is the Proposer's responsibility to periodically check the source of the RFP until the posted Proposal Deadline to obtain any issued addenda. However, Wayne County will make reasonable efforts to inform all Proposers of any clarifications, modifications, or amendments.

When, either before or after receipt of proposals, Wayne County changes its requirements or terms and conditions, the Procurement Director, or their designee, shall amend the solicitation.

The Procurement Director will have the discretion to extend the RFP deadline date if he/she determines that it is in the best interest of the County. Furthermore, the Procurement Director may also cancel the original solicitation and issue a new solicitation if it is in the best interest of the County or if the Amendment is so substantial in nature as to exceed what prospective offerors reasonably could have anticipated, so that additional sources likely would have submitted offers had the substance of the amendment been known to them.



## 1.6 Subcontractors

In an effort to promote supplier diversity, Wayne County encourages Proposers to identify and include qualified disadvantaged businesses as subcontractors when proposing to provide products and services to the County.

If the Proposer's team is composed of a Prime Contractor with subcontractors, the subcontractors must remain exclusive to the Prime described in the proposal until the end of the specific proposal period and may not partner with more than one prime for the purposes of the responsive proposal. The total exclusive time will be 180 days from the proposal due date.

Subcontractors (or their assignments), as it pertains to the Scope of Work, may not be changed without prior written approval by the County. The Contract will not be assignable to any other business entity without the County's approval. Proposers are encouraged to consider a joint venture.

## 1.7 Disqualification of Respondents

Any one or more of the following causes may be considered sufficient for the disqualification of a Proposer and the rejection of the Proposal:

- a. Evidence of collusion among proposers
- b. Lack of competency as revealed by either financial, experience, or equipment statements
- c. Lack of responsibility as shown by past work
- d. Uncompleted work under other contracts which, in the judgment of the County, might hinder or prevent the prompt completion of additional work if awarded
- e. Being in arrears on existing contracts, in litigation with the County, or having defaulted on previous contracts

## 1.8 Freedom of Information Act (FOIA)

Proposal responses, resultant contract(s) and all information submitted to Wayne County by Proposers and Contractors is subject to the Michigan Freedom of Information Act (FOIA), 1976 PA 442, MCL 15.231, et seq.

## 1.9 Disclosure of Contents

All information provided in the proposal shall be held in confidence and shall not be revealed or discussed with competitors, until after award of the contract except as provided by law or court decision. All material submitted with the proposal becomes the property of the County and may be returned only at the County's option.

Proposers must make no other distribution of their proposals other than authorized by this RFP. A Proposer who shares cost information contained in its proposal with other County personnel or competing Proposer personnel shall be subject to disqualification.



### 1.10 County-Based Enterprise (and other) Advantage Programs

Wayne County administers a procurement program that gives pricing advantages (equalization credits) to businesses located within Wayne County and to businesses located within the 10 Targeted Growth Communities within Wayne County (Detroit, Ecorse, Hamtramck, Highland Park, Inkster, Melvindale, River Rouge, Romulus, Sumpter Township, and Taylor). The County shall apply equalization credits up to 7% to the price for proposals submitted by certified County Based Enterprises (CBE) and 2% for Targeted Growth Community Enterprise (TGCE).

#### County Based Enterprise / Targeted Growth Community Enterprise Equalization Allowance Table

Contract Amount	Equalization Percentage
Up to \$50,000 (CBE)	7%
\$50,000 to \$200,000 (CBE)	5%
\$200,000.01 and over (CBE)	2%
Targeted Growth Community Enterprise (TGCE)	2%

This program also includes five additional certifications that provide businesses with equalization credits. The five additional certifications are: Small Business Enterprise (SBE), Expanding Business Enterprise (EBE), Joint Venture (JV), Mentor Venture (MV) and Veteran Enterprise (VE). These equalization credits for qualifying certified suppliers have maximum allowable credits that cannot exceed 10% of the price. All suppliers and their first tier subcontractors\*, who wish to receive credits for their proposals, **must be certified by the Human Relations Division at the time of Proposal and must submit a copy of their current certification in the proposal.**

Certification Eligible for Equalization Credits	Equalization Percentage
Small Business Enterprise (SBE)	2%
Expanding Business Enterprise (EBE)	2%
Joint Venture (JV)	2%
Mentor Venture (MV)	2%
Veteran Enterprise (VE)	2%

Equalization Allowance table for SBE, EBE, JV, MV, VE



**If you have questions regarding certification or to apply for certification please visit Human Relations website at <https://www.waynecounty.com/departments/corpcounsel/certification-program.aspx> or call the office (313) 224-5021.**

Most federal and state funded projects will not include the application of geographic advantages such as the CBE and TGCE in accordance with funding requirements as well as other advantage categories; in these cases, equalization credits will not apply.

\*Additional equalization credits will be awarded to first tier CBE and TGCE subcontractors of the proposer. (See section 4.10.5)

### **1.11 Final Agreement Award Determination**

The County reserves the right to withdraw the RFP, to award to one proposer, to any combination of Proposers, by item, group of items, or total proposal. The County may waive informalities. The Proposer to whom the award is made will be notified at the earliest possible date. Tentative acceptance of the proposal, intent to recommend award of a contract and actual award of the contract will be provided by written notice sent to the proposer at the address designated in the proposal. If, for any reason, a contract is not executed with the selected proposer within a reasonable amount of time, as determined by Wayne County, after notice of recommended award, then the County may recommend the next most responsive and responsible proposer. Award of this proposal is contingent upon the availability of funds for this project, within the sole discretion of the County. Acceptance of the proposer's proposal does not constitute a binding contract.

There is no contract until the agreement is approved by the Wayne County Commission (if such approval is required by the Procurement Ordinance) and executed by the County Executive.

The County is not liable for performance costs until the successful Proposer has been given a fully executed contract. Failure to accept the terms and conditions of the County's Standard Contract may deem the proposer non-responsive.

### **1.12 Conflict of Interest**

No Wayne County employee or agent whose position in Wayne County enables him/her to influence the selection of a Supplier for this RFP, or any competing RFP, nor any spouse of economic dependent of such employees, shall be employed in any capacity by a proposer or have any other direct or indirect financial interest in the selection of a supplier.

### **1.13 Gratuities**

It is prohibited for any Wayne County officer, employee or agent to accept a gratuity for themselves or for a relative, except as permitted by the County's Procurement Ordinance.

A proposer shall not offer or give either directly or through an intermediary, consideration, in any form, to a Wayne County officer, employee or agent for the purpose of securing favorable treatment with respect to the award of the Contract.





#### 1.14 Compliance with Laws

The Proposer must comply with all federal, state, and local laws and policies including, but not limited to:

- A. The provisions of the Wayne County Procurement Ordinance governing “Ethics in Public Contracting”, as applicable to contractors, being Article 12 of Chapter 120, and Contractor agrees to provide all required disclosures;
- B. The Michigan Civil Rights Act;
- C. The Persons With Disabilities Act;
- D. The Age Discrimination Act;
- E. Section 504 of the Rehabilitation Act;
- F. The Slavery Era Disclosure Ordinance;
- G. The Fair Employment Practices of the Equal Contracting Opportunities Ordinances.

#### 1.15 Cooperative Contract (Optional)

Wayne County, as the Lead Public Agency has partnered with Michigan Association of Counties (“MAC”) to make the resultant Contract, from this solicitation available to other Wayne County municipalities and counties across the state, including school districts and local governmental entities, and agencies for the public benefit (“Public Agencies”), through the Collaborative Procurement Plus (“CoPro+”) program. Wayne County is acting as the contracting agency for any other Participating Public Agency that elects to utilize the Contract. Use of the Contract by any Public Agency is preceded by their registration as a Participating Public Agency in Collaborative Procurement Plus (“CoPro+”) program.

As it applies to cooperative agreements, participation in the cooperative program is not a mandatory component or requirement in this solicitation in order for a Proposer to receive an award. Proposers have the option to be considered for a County agreement only or for both a County and cooperative agreement.

##### **Purpose of Cooperative Contract**

1. Provide governmental agencies opportunities for greater efficiency in procuring goods and services
2. Take advantage of state-of-the-art purchasing procedures to insure the most competitive contracts
3. Provide competitive price and bulk purchasing for multiple government agencies that yields economic benefits unobtainable by the individual entity
4. Provide quick and efficient delivery of goods and services
5. Equalize purchasing power for smaller agencies that are unable to command the best contracts for themselves

##### **Administrative Fees**

An administrative fee of 1.5% will be collected on a quarterly basis. The fee will be calculated against the quarterly sales volume for all purchases made under this agreement. A request for Quarterly Sales Reports will be sent out from M.A.C. (Michigan Associations of Counties). M.A.C. is the CoPro+ consortium administrator.



All administrative fees collected under the CoPro+ consortium will be distributed between M.A.C., Wayne County and CoPro+ members that place a sales order against the Master Agreement.

**1.16 Proposal Guarantee**

A proposal guarantee, in the form of a bid bond in the amount of 5% of the total price of the proposal, must be submitted with the proposal. A proposal guarantee is as a guarantee that the proposer will enter into a contract for the work of the proposal is accepted.

**1.17 Pre-Proposal Meeting and Site Visit**

A non-mandatory pre-proposal site visit meeting will be held. (See cover page for location.)

**1.18 Performance and Payment Bonds**

Performance and Payment Bonds in the amount of 100% of the contract value, will be required of the awarded supplier.



## SECTION 2.0 – MINIMUM QUALIFICATIONS

### 2.1 Adherence to Minimum Qualifications (Pass/Fail)

Interested and qualified proposers that can demonstrate their ability to successfully provide the services/products outlined in the Scope of Work/Specifications section of this RFP are invited to submit proposal(s), provided they meet the following minimum qualifications:

- a) The Proposer or its subcontractor must have worked on at least three (3) comparable projects within the last 10 years.
- b) The Proposer or its subcontractor must have a minimum of five (5) years of experience working on projects with comparable scopes of work as listed in this RFP.

Failure of the Proposer to meet with the minimum qualifications will eliminate its proposal from any further consideration.



## SECTION 3.0 – SCOPE OF WORK/SPECIFICATIONS

### 3.1 Contracted Scope of Services/Statement of Work:

The purpose of this RFP is to complete portions of the Iron Belle Trail in Van Buren Township.

### 3.2 Specifications:

#### QUALITY REQUIREMENTS

##### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances.
- C. References.
- D. Testing and inspection services.
- E. Examination.
- F. Preparation.

##### 1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.



### 1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

### 1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Obtain copies of standards where required by product specification sections.
- C. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

### 1.5 TESTING AND INSPECTION SERVICES

- A. Employ and pay for services of an independent testing agency or laboratory acceptable to Fiscal Agent to perform specified testing.
  - 1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
  - 2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Engineer or Authority having jurisdiction.
  - 1. Laboratory: Authorized to operate at Project location.
  - 2. Laboratory Staff: Maintain full time registered Engineer on staff to review services.
  - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Engineer or Fiscal Agent.
- D. Reports will be submitted by independent firm to Engineer, Contractor, and authority having jurisdiction, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
  - 1. Submit final report indicating correction of Work previously reported as non-compliant.



- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
    - 1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
    - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
  
  - F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
  
  - G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
  
  - H. Agency Responsibilities:
    - 1. Test samples of mixes submitted by Contractor.
    - 2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
    - 3. Perform specified sampling and testing of products in accordance with specified standards.
    - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
    - 5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
    - 6. Perform additional tests required by Engineer.
    - 7. Attend preconstruction meetings and progress meetings.
  
  - I. Agency Reports: After each test, promptly submit [two] copies of report to Engineer, Contractor, and authority having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:
    - 1. Date issued.
    - 2. Project title and number.
    - 3. Name of inspector.
    - 4. Date and time of sampling or inspection.
    - 5. Identification of product and specifications section.
    - 6. Location in Project.
    - 7. Type of inspection or test.
    - 8. Date of test.
    - 9. Results of tests.
    - 10. Conformance with Contract Documents.
  
  - J. Limits on Testing Authority:
    - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
    - 2. Agency or laboratory may not approve or accept any portion of the Work.
    - 3. Agency or laboratory may not assume duties of Contractor.
- Agency or laboratory has no authority to stop the Work.



## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify utility services are available, of correct characteristics, and in correct locations.

### 3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

## SOILS AND AGGREGATES

### PART 1 GENERAL

#### 3.3 SUMMARY

- A. Section Includes:
  - 1. Subsoil materials.
  - 2. Topsoil materials.
  - 3. Coarse aggregate materials.
  - 4. Fine aggregate materials.
- B. Related Sections:
  - 1. Section 31 10 00 - Site Clearing
  - 2. Section 31 22 23 - Rough Grading



3. Section 32 12 16 - Asphalt Paving
4. Section 32 13 13 - Concrete Paving
5. Section 32 91 19 - Landscape Grading.

### 3.4 REFERENCES

- A. ASTM International:
  1. ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
  2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  3. ASTM D2487 – Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

### 3.5 SUBMITTALS

- A. Samples: Submit 2, 20lb samples of each type of material to be tested, to the testing company.
- B. Materials Source: Submit name of imported materials supplier(s).
- C. Manufacturer's Certificate: The Contractor shall submit to the Owner, two copies of material certificates signed by the Material Producer and Contractor. Certificates shall state that each material item meets specified requirements.
- D. Gradation Reports: The Contractor shall submit to the Owner, two copies of the gradations for each of the required aggregate mixtures. Mix designs shall be within allowable tolerances as specified for the particular section.

### 3.6 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with local governing agency standards.
- C. Testing and Inspection: The Owner may engage a testing agency to sample and test materials proposed for use in the Work.

## PART 4 PRODUCTS

### 4.1 SUBSOIL MATERIALS

- A. Subsoil Type S1:
  1. Excavated and re-used material, imported borrow and select or local borrow.
  2. Free of lumps larger than 3 inches, rocks larger than 6 inches, organic material, and debris.

### 4.2 TOPSOIL MATERIALS

- A. Topsoil Type S2:





1. Fertile, friable, natural topsoil of loamy character, obtained from on-site.
2. Reasonably free of clay, lumps, coarse sands, plants, roots, rocks larger than 1/2 inch, subsoil, debris, large weeds, and foreign matter.
3. Acidity range pH of 5.0 to 7.5.
4. Containing minimum of 10 percent organic matter.

#### 4.3 AGGREGATE MATERIALS

- A. Crushed Stone Fill, Type A1: Dense-graded crushed concrete or crushed aggregate for use under asphalt pavement, gravel shoulder, and trail surface shall meet the requirements of Section 902 of the Michigan Department of Transportation Standard Specification for Construction, and shall consist of 21AA Crushed Aggregate.
- B. Granular Fill, Type A3: Clean granular material imported from off-site, for use under concrete sidewalk, shall consist of natural sand, stone screenings, gravel or a blend of natural sand, gravel and stone screenings. It shall meet the requirements of Section 902 of the Michigan Department of Transportation Standard Specification for Construction, and shall consist of Class II granular material.
- C. Open-Graded Drainage Course Aggregate Materials (OGDC), Type A5: for use in Temporary Construction Access Drives, and other miscellaneous uses shall consist of crushed stone, crushed gravel or crushed concrete free from organic matter or other deleterious substances with material sized between 1" and 3" in diameter, with less than 6% fine material (#200 sieve). Such materials are usually referred to as "1x3" or "OGDC".

#### 4.4 SOURCE QUALITY CONTROL

- A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D1557.
- B. Testing and Analysis of Granular Fill: Perform in accordance with ASTM D1557.
- C. When tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials from same source throughout the Work.

### PART 5 EXECUTION

#### 5.1 EXAMINATION

- A. Verify compacted substrate is dry and ready to support paving and imposed loads.
- B. Subgrade preparations shall consist of the final machining of the subgrade immediately prior to placing the aggregate subbase or base materials. The surface shall be true to line and grade. Proof roll in areas to receive aggregate materials with a 25-ton rubber-tired roller or loaded dump truck to locate all soft surface areas. Replace soil that deflects and will not compact with acceptable fill material and compact such fill in accordance with these Specifications.
- C. Verify substrate has been inspected, gradients and elevations are correct.



## 5.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.
- C. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the aggregate may be spread, raked, leveled and compacted by using hand tools.
- D. After spreading, the aggregate shall be thoroughly and uniformly compacted by approved compaction equipment. The speed of the compaction equipment shall at all times be sufficiently slow enough to avoid displacement of the aggregate. Any displacement occurring as a result of reversing direction of the compaction equipment or from any other cause shall be corrected at once. Rolling shall continue until all roller marks are eliminated, the surface is of uniform texture and true to grade and cross-section and the required field-density is obtained.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

## 5.3 MINIMUM QUALITY REQUIREMENTS

- A. The Contractor shall at no expense to the Owner test in-place aggregate surface, base course and subbase materials for compliance with the requirements for density and thickness.
- B. Maximum dry density shall be determined per ASTM D1557 modified proctor.
- C. In-place compacted minimum thickness is as shown in the cross-sectional details on the Plans. Any thickness less than shown on the plans is not acceptable.

## 5.4 TOLERANCES

- A. Maximum Variation From Flat Surface: 1/2 inch measured with 10 foot straight edge.
- B. Maximum Variation From Thickness: No less than shown on the Plans.
- C. Maximum Variation From Elevation: 1/2 inch.

## 5.5 FIELD QUALITY CONTROL

- A. Quality Control During Aggregate Placement: Perform the following sampling and testing of aggregate mixtures for quality control during operations. Record the locations where samples are taken to correlate with subsequent testing.
- B. Test uncompacted aggregate for gradation distribution per ASTM D422 and for compaction per ASTM D1557 modified proctor.
- C. Perform three tests for each day's aggregate placement, unless otherwise specified or directed.



- D. Test in-place, compacted aggregate for density and thickness. Perform five tests for each day's aggregate placement unless otherwise specified or directed.
- E. Additional testing may be required if any of the previous tests indicate insufficient values. If two successive tests indicate insufficient values, contact the Owner for a course of action.
- F. Aggregate materials not complying with specified requirements shall be removed and replaced with new aggregate.
- G. Upon completion of the construction Work and after spoils and debris have been removed, re-grade any areas disturbed by the operations.

#### 5.6 STOCKPILING

- A. Stockpile materials on site at locations designated by Owner.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

#### 5.7 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

### **SITE CLEARING**

#### PART 6 GENERAL

##### 6.1 SUMMARY

- A. Section Includes:
  - 1. Remove debris.
  - 2. Remove designated guard rail.
  - 3. Remove designated vegetation.
  - 4. Strip topsoil.
- B. Related Sections:
  - 1. Section 31 22 13 - Rough Grading.



## 6.2 QUALITY ASSURANCE

- A. Perform Work in accordance with local governing agency standards.
- B. Conform to the local governing agency code for environmental requirements and disposal of debris.

## PART 7 PRODUCTS (Not Used)

## PART 8 EXECUTION

### 8.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Locate and protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- C. Control datum for survey is that shown on Drawings.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- E. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.
- G. Verify existing plant life designated to remain.

### 8.2 PREPARATION

- A. Call Local Utility Line Information service, MISS DIG, at 1-800-482-7171 not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.

### 8.3 PROTECTION

- A. General Site Protection:
  - 1. Protect from damage existing items indicated to remain by the erection of barriers or by other appropriate means to ensure protection.
  - 2. Barricade all open depressions, excavations, pits and the like. Provide adequate barricades at all times. Construct barricades of fencing materials and/or lumber conforming to local safety regulations. Remove barriers and fences when no longer required.



3. Maintain and keep public sidewalks, highways and streets in a condition satisfactory to local and/or state officials, and provide necessary watchmen if, and as required, in the use of public thoroughfares. Keep public sidewalks, highways and roads clean of spillage at all times.
- B. Utility Protection:
1. Locate, identify, and protect from damage existing utilities indicated to remain by the erection of barriers or by other appropriate means to ensure protection.
- C. Tree Protection:
1. Protect all trees to remain as designated on plan or as determined in field from damage or injury by any construction operation or equipment, from abuse by workers or any other danger that might arise as a result of this contract.
  2. Where existing trees are vulnerable to damage by construction operations or as indicated and/or as indicated on plan, erect suitable barriers around trees to be protected.
  3. Require any damage to trees resulting from insufficient protection to be repaired by a competent tree surgeon to the satisfaction of the Engineer.
  4. Remove barriers when protection is no longer required.
  5. The owner shall be compensated for the full value of trees damaged beyond repair. Value shall be determined by guidelines proposed by the Council of Tree and Landscape Appraisers as interpreted by a member of the American Society of Consulting Arborists.
  6. To prevent the spread of Oak Wilt Disease, any oak trees to remain on site shall be protected from injury during construction. If pruning is required for on-site oak trees, it must be done during the dormant season. If an oak tree is injured during construction, the wounded area of the tree shall be immediately treated with commercial tree paint or wound dressing. If oak trees are removed during construction during the growing season, stumps shall be treated with tree paint if the stumps are to remain.

#### 8.4 CLEARING

- A. Remove trees and shrubs (if any), grass, other vegetation, improvements or obstructions interfering with installation of Work as indicated on plans or as directed in project kick-off meeting. Removal includes digging out stumps and roots. Coordinate portions of this work with others as determined in the project kick-off meeting.

#### 8.5 REMOVAL

- A. Remove any debris, rock, and extracted plant life from site. All debris resulting from site clearing operations shall be hauled off site.
- B. Remove asphalt and concrete paving as indicated on Drawings. Neatly saw cut pavement edges at right angle to surface.
- C. Remove guard rail where indicated on plans. Remove designated guard rail material from site.
- D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.



- E. Do not burn or bury materials on site. Leave site in clean condition.

## 8.6 TOPSOIL STRIPPING

- A. Strip grass and topsoil to full depth of topsoil from areas to be further excavated or re-graded. Do not excavate wet topsoil.
- B. Stockpile topsoil alongside of work area, outside of grading limits. Construct stockpile area to positively drain surface water.
- C. Remove excess excavated subsoil and topsoil not intended for reuse, from site.

END OF SECTION

## ROUGH GRADING

### PART 9 GENERAL

#### 9.1 SUMMARY

- A. Section Includes:
  - 1. Excavating subsoil.
  - 2. Cutting, grading, filling, rough contouring, and compacting for pavements.
- B. Related Sections:
  - 1. Section 31 05 16 – Soils and Aggregates.
  - 2. Section 31 10 00 - Site Clearing

#### 9.2 REFERENCES

- A. ASTM International:
  - 1. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 2. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

#### 9.3 SUBMITTALS

- A. Materials Source: Submit name of imported materials suppliers.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.



#### 9.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

#### 9.5 QUALITY ASSURANCE

- A. The Contractor shall arrange and pay for tests and required inspections necessary to meet the requirements set forth in these Construction Documents.

### PART 10 PRODUCTS

#### 10.1 MATERIALS

- A. Topsoil: Type S2 as specified in Section 31 05 16.
- B. Subsoil Fill: Type S1 as specified in Section 31 05 16.
- C. Crushed Stone Fill: Type A1 as specified in Section 31 05 16.
- D. Sand/Gravel Fill: Type A2as specified in Section 31 05 16.
- E. Granular Fill: Type A4 as specified in Section 31 05 16.

### PART 11 EXECUTION

#### 11.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.
- C. Locate and protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- D. Control datum for survey is that shown on Drawings.
- E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- F. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.



## 11.2 PREPARATION

- A. Call Local Utility Line Information service, 811, MISS DIG, at 1-800-482-7171 not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company prior to removing or relocating utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

## 11.3 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, re-landscaped, or regraded.
- B. Do not excavate wet subsoil or excavate and process wet material to obtain optimum moisture content.
- C. When excavating through roots, perform Work by hand and cut roots with sharp axe.
- D. Remove excess subsoil not intended for reuse, from site.
- E. Stability: Replace damaged or displaced subsoil as specified for fill.

## 11.4 FILLING

- A. Fill areas to subgrade elevations with unfrozen materials.
- B. Place material in continuous layers as follows:

<u>Compaction Method</u>	<u>Maximum Loose Lift Thickness</u>
Hand-operated vibratory plate or light roller in confined areas 4 inches	
Hand-operated vibratory roller weighing at least 1,000 pounds 6 inches	
Vibratory roller drum roller, minimum dynamic force, 2,000 pounds	9 inches





Vibratory drum roller, minimum dynamic force, 30,000 pounds	12 inches
Sheeps-foot roller	8 inches

- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Make grade changes gradual. Blend slope into level areas.
- E. Repair or replace items indicated to remain damaged by excavation or filling.

#### 11.5 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

#### 11.6 FIELD QUALITY CONTROL

- A. Perform laboratory material tests in accordance with ASTM D1557.
- B. Perform in place compaction tests in accordance with the following:
  - 1. Density and Moisture Tests: ASTM D-6938.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: Provide one density test for every lift.

#### 11.7 SCHEDULES

- A. Fill under pavement and sidewalks:
  - 1. Compact uniformly to minimum 95 percent of maximum density per ASTM D-1557.
- B. Fill in landscape areas:
  - 1. Compact uniformly to minimum 88 percent of maximum density per ASTM D-1557.

END OF SECTION



## EXCAVATION

### PART 12 GENERAL

#### 12.1 SUMMARY

- A. Section Includes:
  - 1. Soil densification.
  - 2. Excavating for asphalt and concrete walkways.
  - 3. Excavating for site structures.
- B. Related Sections:
  - 1. Section 31 05 16 - Soils and Aggregates.
  - 2. Section 31 22 13 - Rough Grading:

#### 12.2 REFERENCES

- A. Local utility standards when working within 24 inches of utility lines.

#### 12.3 SUBMITTALS – None required.

#### 12.4 QUALITY ASSURANCE

- A. Perform Work in accordance with local governing agency standards.

### PART 13 PRODUCTS

Not Used.

### PART 14 EXECUTION

#### 14.1 PREPARATION

- A. Call Local Utility Line Information service at 1-800-482-7171 not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company prior to the removal and relocation of utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.



- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

#### 14.2 EXCAVATION

- A. Slope banks with machine to angle of repose or less until shored.
- B. Do not interfere with 45 degree bearing splay of foundations.
- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Trim excavation. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock.
- F. Notify Engineer of unexpected subsurface conditions.
- G. Remove excess and unsuitable material from site.
- H. Stockpile subsoil to be re-used on-site in area designated on site to depth not exceeding 8 feet and protect from erosion.
- I. Repair or replace items indicated to remain damaged by excavation.

#### 14.3 FIELD QUALITY CONTROL

- A. Request inspection of excavation and controlled fill operations in accordance with applicable code and local governing agency requirements.
- B. Request visual inspection of bearing surfaces by inspection agency before installing subsequent work.

#### 14.4 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION



## FILL

### PART 15 GENERAL

#### 15.1 SUMMARY

- A. Section Includes:
  - 1. Fill under paving.
  - 2. Fill for over-excavation.
- B. Related Sections:
  - 1. Section 31 05 16 – Soils and Aggregates.
  - 2. Section 31 22 13 - Rough Grading
  - 3. Section 32 91 19 - Landscape Grading.

#### 15.2 REFERENCES

- A. ASTM International:
  - 1. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 2. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 3. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

#### 15.3 SUBMITTALS

- A. Materials Source: Submit name of imported fill materials suppliers.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

#### 15.4 QUALITY ASSURANCE

- A. Perform Work in accordance with local governing agency standards.

### PART 16 PRODUCTS

#### 16.1 FILL MATERIALS

- A. Common Fill: Type [S1] as specified in Section 31 05 16.
- B. Crushed Stone Fill: Type [A1] as specified in Section 31 05 16.
- C. Granular Fill: Type [A3] as specified in Section 31 05 16.



PART 17 EXECUTION

17.1 EXAMINATION

- A. Verify subdrainage, or other below grade Work has been inspected.

17.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural or granular fill per Geotechnical Report and compact to density equal to or greater than requirements for subsequent fill material.
- C. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

17.3 BACKFILLING

- A. Backfill over subdrainage and beneath athletic area root zone areas to contours and elevations with unfrozen materials. Use Granular Fill: Type [A3] as specified in Section 31 05 16.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place material in continuous layers as follows:

<u>Compaction Method</u>	<u>Maximum Loose Lift Thickness</u>
Hand-operated vibratory plate or light roller in confined areas	4 inches
Hand-operated vibratory roller weighing at least 1,000 pounds	6 inches
Vibratory roller drum roller, minimum dynamic force, 2,000 pounds	9 inches
Vibratory drum roller, minimum dynamic force, 30,000 pounds	12 inches
Sheeps-foot roller	8 inches

- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.



- F. Make gradual grade changes. Blend slope into level areas.
- G. Remove surplus backfill materials from site.
- H. Leave fill material stockpile areas free of excess fill materials.

#### 17.4 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

#### 17.5 FIELD QUALITY CONTROL

- A. Perform laboratory material tests in accordance with ASTM D1557.
- B. Perform in place compaction tests in accordance with the following:
  - 1. Density Tests: ASTM D2922.
  - 2. Moisture Tests: ASTM D3017.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Proof roll compacted fill surfaces under slabs-on-grade and paving.

#### 17.6 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

### **EROSION CONTROLS**

#### PART 18 GENERAL

##### 18.1 SUMMARY

- A. Section Includes:
  - 1. Silt Fence
  - 2. Sediment Traps.
- B. Related Sections:
  - 1. Section 31 05 16 - Soils and Aggregates.
  - 2. Section 31 22 13 - Rough Grading.
  - 3. Section 32 91 19 - Landscape Grading.
  - 4. Section 32 92 19 - Seeding.



## 18.2 REFERENCES

- A. ASTM International:
  - 1. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).

## 18.3 SUBMITTALS

- A. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

## 18.4 QUALITY ASSURANCE

- A. Perform Work in accordance with local governing agency standards.

## 18.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not place grout when air temperature is below freezing.

## PART 19 PRODUCTS

### 19.1 PLANTING MATERIALS

- A. Seeding and Soil Supplements: as specified in Section 32 92 19.
- B. Mulch: as specified in Section 32 92 19.

### 19.2 ACCESSORIES

- A. Inlet Filter Fabric: Geotextile fabric with minimum flow rate of 100 gal/min./s.f. meeting local governing agency requirements.
- B. Silt Fencing: Geotextile filter fabric with minimum flow rate of 10 gal/min./s.f., [Amoco Pro Pex 2130] or approved equal.

## PART 20 EXECUTION

### 20.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.
- C. Verify gradients and elevations of base or foundation for other work are correct.



## 20.2 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2:1 or flatter.
- D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
  - 1. During non-germinating periods, apply mulch at recommended rates.
  - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 32 92 19 at 50 percent of permanent application rate with no topsoil.
  - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.
- E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

## 20.3 FIELD QUALITY CONTROL

- A. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.
- B. Compaction Testing: In accordance with ASTM D1557.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

## 20.4 CLEANING

- A. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.
- B. Do not damage structure or device during cleaning operations.
- C. Do not permit sediment to erode into construction or site areas or natural waterways.
- D. Clean channels when depth of sediment reaches approximately one half channel depth.

END OF SECTION





## ASPHALT PAVING

### PART 21 GENERAL

#### 21.1 SUMMARY

- A. Section Includes:
  - 1. Asphalt materials.
  - 2. Aggregate materials.
  - 3. Aggregate subbase.
  - 4. Asphalt paving leveling course and wearing course.
  
- B. Related Sections:
  - 1. Section 31 22 13 - Rough Grading: Preparation of site for paving and base.
  - 2. Section 31 23 23 - Fill: Compacted subbase for paving.
  - 3. Section 32 05 16 - Aggregates for Exterior Improvements: Product requirements for aggregate for placement by this section.

#### 21.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO M140 - Standard Specification for Emulsified Asphalt.
  
- B. ASTM International:
  - 1. ASTM D977 - Standard Specification for Emulsified Asphalt.
  - 2. ASTM D979 - Standard Practice for Sampling Bituminous Paving Mixtures.
  - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
  - 4. ASTM D1559 - Test Method for Resistance of Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
  - 5. ASTM D2172 - Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.
  - 6. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
  - 7. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.

#### 21.3 SUBMITTALS

- A. Product Data:
  - 1. Submit product information for asphalt and aggregate materials.
  - 2. Submit mix design with laboratory test results supporting design.
  
- B. Manufacturer's Certificate: Certify that materials specified in this section meet or exceed the specified requirements.



- C. The paving contractor shall execute the Guarantee for Bituminous Pavement form located at the end of this section per the requirements set forth on the form.

#### 21.4 QUALITY ASSURANCE

- A. Mixing Plant: Certified by State of Michigan.
- B. Obtain materials from same source throughout.
- C. Perform Work in accordance with Michigan Department of Transportation (MDOT) standards.

#### 21.5 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum of five (5) years documented experience.

#### 21.6 ENVIRONMENTAL REQUIREMENTS

### PART 22 PRODUCTS

#### 22.1 ASPHALT MATERIALS

- A. Asphalt Cement: Shall comply with the requirements of ASTM D3381 for viscosity graded asphalt cement AC-10 (85-100 penetration grade) and meet the requirements of Section 501 of the Michigan Department of Transportation Standard Specifications for Construction (latest edition).
- B. Reclaimed Asphalt Pavement (RAP): Processed material obtained by milling or full depth removal of existing asphalt paving.

#### 22.2 AGGREGATE MATERIALS

- A. Coarse Aggregate: Shall consist of crushed stone, crushed gravel, a mixture of uncrushed gravel with either crushed stone or crushed gravel, or other inert material having similar characteristics. It shall be composed of clean, tough, durable fragments free from an excess of flat or elongated pieces and shall be free of organic matter and deleterious substances and meet the requirements of Section 902 of the Michigan Department of Transportation Standard Specifications for Construction (latest edition).
- B. Fine Aggregate: Shall be well graded from coarse to fine and consist of natural sand, stone screenings or a blend of natural sand and stone screenings. It shall be composed of rough surfaced and angular grains of quartz or other hard durable rock and meet the requirements of Section 902 of the Michigan Department of Transportation Standard Specifications for Construction (latest edition).
- C. Mineral Filler: Shall be limestone dust, dolomite dust, slag or hydrated lime meeting the requirements of Section 902 of the Michigan Department of Transportation Standard Specifications for Construction (latest edition).



### 22.3 MIXES

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Asphalt Paving Mixtures: Designed in accordance with the Michigan Department of Transportation Standard Specifications for Construction (latest edition).
  - 1. Bike Path Wearing Course: MDOT 36A (1.5" Depth)
  - 2. Bike Path Leveling/ Base Course: MDOT 36A (1.5" Depth)
  - 3. Road Wearing Course: MDOT 13A (1.5" depth)
  - 4. Road Leveling / Base Course: MDOT 13A (2.5" Depth)

### 22.4 SOURCE QUALITY CONTROL

- A. Submit proposed mix design of each class of mix for review prior to beginning of Work.
- B. Test samples in accordance with ASTM D979, D2172 and D2950.

## PART 23 EXECUTION

### 23.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- C. Verify compacted subgrade, aggregate base course and subbase is dry and ready to support paving and imposed loads.
  - 1. Proof roll subbase with a (25-ton minimum weight) rubber-tired roller or loaded dump truck in a minimum of two perpendicular passes to identify soft spots.
  - 2. Remove soft subbase and replace with compacted fill as specified in Section 31 23 23.
- D. Verify gradients and elevations of base are correct.
- E. Verify all manhole, catch basin and inlet grates and frames (and any other type of casting within the area to be paved) are installed in correct position and at correct elevation.

### 23.2 SUBBASE AND BASE COURSE

- A. Aggregate Subbase and/or Base Course to be installed per Section 32 05 16.

### 23.3 EXISTING WORK

- A. Saw cut existing paving as indicted on Drawings.
- B. Clean existing paving to remove foreign material, excess joint sealant and crack filler from paving surface.



- C. Repair surface defects in existing paving to provide uniform surface to receive new paving.

#### 23.4 DOUBLE COURSE ASPHALT PAVING

- A. Place wearing course to the thickness as indicated on Drawings.
- B. Compact each course by rolling to specified density (Ninety-seven (97) percent of the recorded laboratory specimen density per ASTM D1559). Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
- C. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

#### 23.5 ERECTION TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch as measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: No less than specified on the Drawings.
- C. Variation from Indicated Elevation: Within 1/4 inch.

#### 23.6 FIELD QUALITY CONTROL

- A. Record the locations where samples are taken to correlate with subsequent testing.
- B. Sample asphalt paving in accordance with ASTM D979.
- C. Asphalt Cement Content: ASTM D2172; three tests for each days paving unless otherwise directed or specified by the Owner.
- D. Asphalt Paving Mix Temperature: Measure temperature at time of placement.
- E. Asphalt Paving Thickness: ASTM D3549; perform five tests for each days paving unless otherwise directed or specified by the Owner.
- F. Asphalt Paving Density: ASTM D2950 nuclear method; perform five tests for each days paving unless otherwise directed or specified by the Owner.
- G. Additional testing may be required if any of the previous tests indicate insufficient values. If two successive tests indicate insufficient values, contact the Owner for a course of action.
- H. Asphalt concrete materials not complying with specified requirements shall be repaired or removed and replaced with new paving.

#### 23.7 PROTECTION OF FINISHED WORK

- A. Immediately after placement, protect paving from mechanical injury for at least 6 hours or until surface temperature is less than 140 degrees F.



END OF SECTION

DATE:

CONTRACTOR:

STREET ADDRESS:

CITY, STATE, ZIP:

AGENT:

GUARANTEE FOR BITUMINOUS PAVEMENT

We hereby guarantee that the Asphalt Pavement which we have installed at \_\_\_\_\_ for has been done in strict accordance with the Drawings and Specifications. We will repair or replace, or agree to have repaired or replaced, all Work which may prove to be defective in workmanship or materials. We will repair or replace, or agree to have repaired or replaced, any adjacent Work which required repair or replacement because of our defective Work. We guarantee the Work for two years from the date of acceptance by the Owner

Failure to comply with the above paragraph within 10 days after receipt of written notice from the Owner, or failure to Work with diligence, authorizes the Owner to proceed with repair of the defective Work. We shall pay the costs and charges for the repairs along with interest at the maximum rate permitted by law upon demand. If we fail to fulfill the preceding obligation, and if the Owner brings an action to enforce this guarantee, we agree to pay the Owner's reasonable attorney fees incurred.

CONTRACTOR'S SIGNATURE

- (a) The Paving Contractor shall execute the Guarantee Form as shown above.



- (b) All Manufacturer's Warranties for materials shall be filled out, dated, signed and submitted to Owner.

END OF SECTION

## CONCRETE PAVING

### PART 24 GENERAL

#### 24.1 SUMMARY

- A. Section Includes:
1. Concrete paving for:
    - a. Concrete sidewalks.
    - b. Concrete pavements.
- B. Related Sections:
1. Section 32 17 23 - Pavement markings.
  2. Section 31 22 13 - Rough Grading
  3. Section 32 12 16 - Asphalt Paving

#### 24.2 REFERENCES

- A. MDOT 2012 Standard Specifications for Construction
- B. ASTM International:
1. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
  2. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  3. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
  4. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
  5. ASTM C150 - Standard Specification for Portland Cement.
  6. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
  7. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
  8. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
  9. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  10. ASTM C994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
  11. ASTM D994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).



### 24.3 SUBMITTALS

- A. Submittal of On-Site Mixed Concrete:
1. The contractor will keep record of each batch mixed, which will include:
    - a. Type and brand of cement used.
    - b. Amount of cement in sacks per cu. yd.
    - c. Maximum size of aggregate.
    - d. Total water content in W/C ratio (lbs./lbs.)
    - e. Total amount of mixing time, starting at placement of water in the mixer.
    - f. Location of placement of each batch.
    - g. Copies of these records shall be furnished to the Owner, the Testing Laboratory and the Engineer at the completion of each day's work or on demand.
  2. One copy of each delivery ticket for the aggregate used shall be submitted to the Owner and the Engineer.
- B. Submittal of Ready-Mixed Concrete Information
1. Statement of Purchase for Ready-Mixed Concrete: Prior to actual delivery of concrete, submit, to the Owner, four copies of Statement of Purchase, giving the dry weights of cement and saturated surface dry weights of fine and coarse aggregates and quantities, type and name of admixtures (if any) and of water per cu. yd., that will be used in the manufacture of the concrete. The Contractor shall also furnish evidence satisfactory to the Owner that the materials to be used and proportions selected will produce concrete of the quality specified. Whatever strengths are obtained, the quality of cement used shall not be less than the minimum specified.
  2. Reports: Submit four copies of reports, to the Owner, for ready-mix concrete slump, air content, unit weight, yield and strength tests as specified in Section 15 and 17 of ASTM C94.
  3. Ready-Mixed Concrete Delivery Tickets: Submit one copy of each delivery ticket to the Owner and Contractor in accordance with Section 16 of ASTM C94.
  4. Submit manufacturers complete technical data sheet for colored admixtures and curing compounds for any colored concrete pavement and sidewalk areas. Include color charts for initial selection of color by Owner.
- C. The paving contractor shall execute the Guarantee for Concrete Pavement and Guarantee for Concrete Sidewalk forms located at the end of this section per the requirements set forth on the forms.
- D. Design Data:
1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
    - a. Hot and cold weather concrete work.
  2. Identify mix ingredients and proportions, including admixtures.
  3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.
- E. Finish Materials:
1. Submit product data for exposed aggregate surface retarder.



#### 24.4 QUALITY ASSURANCE

- A. Testing and Inspection Service: The Owner may engage a testing agency to sample and test concrete materials proposed for use in the Work, perform tests and calculations for concrete mixtures and perform testing during paving operations.
- B. Submit to the Owner, two copies of materials certificates signed by Material Producer and Contractor. Certificates shall state that each material item meets specified requirements.
- C. Submit to the Owner, job-mix formulas for each required cement-aggregate mixture. Mix designs shall be within allowable tolerances as specified for the particular application.
- D. Obtain cementitious materials from same source throughout.
- E. Perform Work in accordance with local governing agency standards.

#### 24.5 QUALIFICATIONS

- A. Manufacturer: All ready-mixed concrete suppliers must be approved by the Owner. Concrete shall be manufactured and delivered to the job Site by a ready-mixed concrete manufacturer thoroughly experienced in ready-mixed concrete. If requested by the Owner, submit a written description of proposed ready-mixed concrete Manufacturer, giving qualifications of Personnel, location of batching plant, list of Projects similar in scope to specified Work, and other information as may be requested by the Owner.
- B. Installer: All concrete installers must be approved by the Owner. If requested by the Owner, submit a written description of proposed ready-mixed concrete Installer, giving qualifications of Personnel, list of Projects similar in scope to specified Work, and other information as may be requested by the Owner.

#### 24.6 ENVIRONMENTAL REQUIREMENTS

- A. Construct concrete surface course only when ground temperature is above 35-degrees F and base is dry. Base course must be laid when temperature is above 35-degrees F and rising.

#### 24.7 TRAFFIC CONTROL

- A. Maintain vehicle and pedestrian traffic during paving and repair operations in such a manner as to not disrupt normal business activities of adjacent enterprises.

### PART 25 PRODUCTS

#### 25.1 FORM MATERIALS

- A. Wood, steel or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends as required.





- B. When forms are used and the pavement radius is less than 200 feet, the curved alignment shall be provided for by either standard steel forms equipped with flexible liners or by flexible forms. The forms shall be of the full depth of the section. Curb and gutter forms shall be so constructed as to permit the inside of the form to be securely fastened to the outside forms.

## 25.2 JOINT MATERIALS

- A. Asphalt Expansion Joint Filler: ASTM D994 pre-formed bituminous type, 3/4-inch thick unless otherwise shown on the Drawings; such as W.R. Meadows Inc. "Asphalt Expansion Joint", W.R. Grace & Co. "Servicised Code 1301", Celotex Corp. "Elastite" or approved equal.
- B. Hot Poured Joint Sealer: Fed. Spec. SS-5-164(4) rubber asphalt type; such as W.R. Meadows, Inc. "Sealtight 164," W.R. Grace & Co. "Servicised Para-Plastic Code 2341," Celotex Corp. "Standard Carelastic Sealing Compound" or approved equal.
- C. Cold Applied Joint Sealer: Fed. Spec. SS-5-158A(1) liquefier type; such as W.R. Meadows, Inc. "Sealtight 158", W.R. Grace & Co. "Servicised Zero-Lastic Code 2377", Cellotex Corp. "Carelastic Cold Seal" or approved equal.
- D. Expansion papers shall be of the pre-molded non-extruding, asphalt impregnated type, not less than 1/2-inch thick. The length shall be equal to the width of the slab and the depth equal to the thickness of the slab plus 1-inch.

## 25.3 REINFORCING

- A. Welded Plain Wire Fabric: ASTM A185; in flat sheets; epoxy coated finish.
- B. Dowels: ASTM A615; 60ksi yield strength, plain steel bars; cut to length indicated on Drawings, square ends with burrs removed; epoxy coated finish.

## 25.4 CONCRETE MATERIALS

- A. Cement: All cement used in pavement construction shall be Portland Cement, ASTM C150, Type I – Normal or Type IA.
- B. Fine and Coarse Aggregates:
  - 1. The fine aggregate shall meet all requirements of Section 902 of the Michigan Department of Transportation Specification for 2NS-Natural Sand
  - 2. The coarse aggregate shall meet all requirements of Section 902 of the Michigan Department of Transportation Specification for No. 6A Coarse Aggregate.
- C. Water: ASTM C94; Water used in concrete shall be clean, free from oil, acids, strong alkaline or vegetable matter and potable. If municipal water is used in concrete, all necessary permits shall be obtained from the Water Department.
- D. Air Entrainment: Air-entraining admixture shall be in accordance with ASTM C260.
- E. Chemical Admixture: ASTM C494.



F. Concrete can be either mixed on-site or be ready-mixed concrete.

## 25.5 ACCESSORIES

A. Clear Curing Compound: The curing compound ASTM C309, Type II, Class B, or approved equal. It shall not allow a moisture loss of more than 0.055 gr./sq. cm. when applied at 200 sq.ft./gallon.

## 25.6 CONCRETE MIX

A. Production of Ready-Mixed Concrete:

1. Ready-mixed concrete shall be batched, mixed and transported in accordance with MDOT 35P.
2. Ready-mixed concrete shall be mixed and delivered to the point of discharge at the job by means of a ready-mix concrete truck.
3. No water from the truck water system or elsewhere shall be added after the initial introduction of the mixing water for the batch. Under no circumstances shall the approved maximum water content be exceeded nor shall the slump exceed the maximum specified.
4. Discharge of the concrete shall be completed within 1-1/2 hours or before the drum has revolved 300 revolutions, whichever comes first, after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates.
5. In hot weather (air temperature 80-degrees F. and above) or under conditions contributing to quick stiffening of the concrete, the time shall be reduced to one hour.
6. Concrete delivered in cold weather (air temperature 45-degrees F. and lower) shall have a temperature not less than 60-degrees F. at the point of discharge at job, and in compliance with ACI 306 R "Cold Weather Concreting". Concrete placing will not be permitted when the air temperature is 35-degrees F. or lower.
7. Concrete delivered under hot weather conditions contributing to quick stiffening of concrete, or in air temperature of 80-degrees F. and over, shall have a temperature between 60- and 80-degrees F. at the point of discharge at job, and in accordance with ACI 305 R "Hot Weather Concreting."

B. Provide concrete to the following criteria:

1. Compressive Strength: 3500 psi minimum at 28 days unless otherwise noted.
2. Slump: 3 inches maximum.
3. Total air content by volume: 5% to 8%.

C. Use calcium chloride only when approved by the Engineer in writing.

## 25.7 CLEANING OF THE MIXER OR TRUCK

A. In no case shall the mixer or truck be flushed out onto the street pavement, in a catch basin or sewer manhole, or in any public right-of-way.

## PART 26 EXECUTION

### 26.1 EXAMINATION

A. Verify existing conditions before starting work.



- B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- C. Verify compacted subgrade is dry and ready to support paving and imposed loads.
  - 1. Proof roll subbase with a (25-ton minimum weight) rubber-tired roller or loaded dump truck in a minimum of two perpendicular passes to identify soft spots.
  - 2. Remove soft subbase and replace with compacted fill as specified in Section 31 23 23.
- D. Verify gradients and elevations of base are correct.
- E. Verify all manhole, catch basin and inlet grates and frames (and any other type of casting within the area to be paved) are installed in correct position and at correct elevation.

## 26.2 SUBBASE AND BASE COURSE

- A. Aggregate Subbase and/or Base Course shall be installed per Section 32 05 16.

## 26.3 PREPARATION

- A. Moisten substrate to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manholes, catch basins and inlets (and any other type of casting within the area to be paved) with oil to prevent bond with concrete paving.

## 26.4 LINE AND GRADE

- A. The contractor will hire a Registered Land Surveyor to establish the line and grade from the Construction Plans.

## 26.5 PROPERTY MARKERS

- A. All property stakes, irons, monuments, etc. shall be protected and shall not be moved without the written permission of the Property Owner.

## 26.6 FORMING

- A. Compact and cut-to-grade subgrade under forms so that forms when set will be uniformly supported for the entire length. Securely stake and brace or tie forms to prevent leakage of mortar. Bracing with piles of earth will not be permitted.
- B. Coat surfaces of forms to be in contact with concrete with light clear paraffin oil or parting compound which will not stain the concrete.
- C. Before start of concrete placing, formwork shall be complete and approved by the Engineer.
- D. Hardened concrete, debris and foreign material shall be removed from interior of forms.



## 26.7 REINFORCING

- A. Provide reinforcement for concrete pavement as shown on the Drawings. Reinforcement shall be kept clean and free from objectionable rust. Bends or kinks in reinforcing bars shall be corrected before placing. All reinforcement shall be accurately located in forms and securely held in place, before and during concrete placing, by supports adequate to prevent displacement during the course of construction.

## 26.8 PLACING CONCRETE

- A. Concrete shall be handled from the point of delivery and to concrete conveying equipment, and to the location of final deposit by methods which will prevent segregation and loss of concrete mix materials and in a manner which will assure that the required quality of concrete is maintained.
- B. Equipment for Conveying Concrete:
  - 1. Runways for wheeled concrete conveying equipment shall be provided for the ready-mix concrete delivery point to the locations of final deposit.
  - 2. The interior surfaces of concrete conveying equipment shall be maintained free of hardened concrete, debris, water, snow, ice and other deleterious materials.
- C. When the temperature of the surrounding air is expected to be below 40-degrees F. during concrete placing or within 24-hours thereafter, the temperature of the plastic concrete, as placed, shall be no lower than 60-degrees F. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set of cold joints, and should not exceed 90-degrees F. When the temperature of the concrete exceeds 80-degrees F., precautionary measures approved by the Engineer shall be put into effect. When the temperature of steel forms is greater than 120-degrees F., the steel surfaces shall be sprayed with water just prior to placing the concrete.
- D. Concrete shall be deposited continuously. Concrete which has partly hardened or has been contaminated by foreign materials shall not be placed; such concrete shall be removed from the Site and disposed of in a location approved by the Owner or Governing Agency.
- E. Pavement may be constructed either by use of forms or by a mechanical paver, provided the required finish, and cross-section, as shown on Drawings, are obtained. Concrete shall be placed to provide one course monolithic structure without the use of mortar topping or sand-cement drier. Concrete shall be spaded or vibrated sufficiently to ensure satisfactory consolidation.
- F. The concrete surface shall be struck off to a plane surface with a straightedge. After the surface has been floated to an even surface, the contraction joint shall be cut and all slab edges rounded with a 1/2-inch radius edging tool that will finish to a width of 2-inches. After the concrete has slightly set, a broom shall be brushed lightly across the surface at right angles to forms so as to impart the required finish per Section 3.13.

## 26.9 JOINTS FOR CONCRETE PAVEMENT

- A. Provide expansion joints in concrete pavement at the end of each day's pour, unless the pour ends at an expansion joint; in line with all contraction joints and end-of-pour joints of abutting concrete placements, at 40-foot maximum intervals, and elsewhere as shown on Drawings.



- B. Form contraction joints by sawing a 1/4" wide cut perpendicular to the surface and at right angles to the edge of pavement, to a depth of at least 1/4 the slab thickness with a minimum depth of 3 inches.
- C. Longitudinal joints shall be placed parallel to edge of pavement and located at 1/3 points or as shown on the Plans. Depth and width are specified in paragraph 3.9B above.
- D. Provide expansion joints in concrete pavement, at tangent points or radius returns, at intersections, in straight runs at uniform intervals not exceeding 50 feet on center or as indicated on drawing.
- E. Provide expansion joints between concrete pavement and adjacent rigid structures not specified herein before.
- F. Fill expansion joints with expansion joint filler strips, 1-inch thick unless otherwise shown on the Drawings. The strap shall extend the full depth of the concrete complying with AASHTO M-213, Type III.
- G. All expansion joints in concrete pavement sections shall be sealed with either hot-poured joint sealer or cold-applied joint sealer.
- H. Prior to applying joint sealer, remove wood strips. Clean joint groove of foreign matter and loose particles, and dry surface.
- I. Slightly underfill joint groove with joint sealer to prevent extrusion of the sealer. Remove excess joint sealer material as soon after sealing as possible.
- J. Subsequent to joint sealing, protect sealed areas from contact with injurious substances or damage from construction traffic or operations until project completion.

#### 26.10 JOINTS FOR CONCRETE SIDEWALK

- A. Contraction joints shall be placed at right angles to the edge of the sidewalk and perpendicular to the surface and at a depth of at least 1/4 the slab thickness with a minimum depth of 1-1/4 inches.
- B. Contraction joints shall be spaced at a minimum of every 5-foot, or as shown on the Plans.
- C. The concrete surface shall be struck off to a plane surface with a straightedge. After the surface has been floated to an even surface, the contraction joint shall be cut and all slab edges rounded with a 1/2-inch radius edging tool that will finish to a width of 2-inches.
- D. After the concrete has set, a broom shall be brushed lightly across the surface at right angles to forms so as to impart the required finish per Section 3.13.
- E. Expansion joints shall be placed at the following locations:
  - 1. At the back of the curb and front edge of the sidewalks adjacent to each driveway approach and service walk.
  - 2. At intervals not to exceed 30-feet in all public sidewalks.
  - 3. At the back of the curb where the ramps extend from the key flag to the street.
  - 4. Between the key flag and the ramp in all cases except where there are existing expansion joints at the intersections of the sidewalk and the key flag.



5. At any place where a sidewalk abuts a building or fixed structure.
6. At any other locations indicated on the Plans.

#### 26.11 FINISHING CONCRETE PAVEMENT

- A. Sidewalk Paving: Light broom, radius to 1-inch radius, and trowel joint edges
- B. Direction of Texturing: Transverse to paving direction.

#### 26.12 CURING AND WEATHER PROTECTION

- A. Freshly placed concrete shall be protected as required to maintain the temperature of the concrete at not less than 50-degrees F nor more than 80-degrees F and in a moist condition continuously for a period of time necessary for the concrete to cure per Section 3.14B and 3.14C. Changes in temperature of the concrete during curing shall be as uniform as possible and shall not exceed 5-degrees F in any one hour, or 50-degrees F in any 24 hour period.
- B. Cold Weather Protection: When the temperature of the atmosphere is 40-degrees F and below, the concrete shall be protected by heating, insulation covering, housing or combination thereof as required to maintain the temperature of the concrete at or above 50-degrees F and in a moist condition continuously for the concrete curing period. Cold weather protection shall meet the requirements of ACE 306R "Cold Weather Concreting".
- C. Hot Weather Protection: When the temperature of the atmosphere is 90-degrees F and above, or during other climatic conditions which will cause too rapid drying of the concrete, the concrete shall be protected by windbreaks, shading, fog spraying light-colored moisture-retaining covering, or a combination thereof as required to maintain the temperature of the concrete below 80-degrees F and in a moist condition continuously for the concrete curing period. Hot weather protection shall meet the requirements of ACI 305R "Hot Weather Concreting".

#### 26.13 REMOVAL OF FORMS AND CLEAN UP

- A. All forms, rails and stakes shall be removed within 24-hours after placing the pavement, sidewalk or curbs.
- B. After completion of concrete curing in an area, remove all weather protection materials and rubbish and debris resulting from the specified Work, sweep concrete curbs clean and seal joints as specified in Sections 3.9 through 3.11.

#### 26.14 ERECTION TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Maximum Variation of Surface Flatness: 1/8 inch in 10 ft.
- C. Variation from Indicated Elevation: Within 1/4 inch.
- D. Maximum Variation From True Position: 1/4 inch.



- E. Scheduled Thickness: No less than specified on the Drawings.

#### 26.15 FIELD QUALITY CONTROL

- A. Section 01 40 00 – Quality Requirements and 01 70 00 – Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform field inspection and testing in accordance with ASTM C94 and local governing agency standards.
- C. Inspect reinforcing placement for size, spacing, location, support.
- D. Quality Control During Paving Operations:
  - 1. Sampling Procedures: AST C172.
  - 2. Cylinder Molding and Curing Procedures: ASTM C31, cylinder specimens.
  - 3. Sample concrete and make three cylinders for each day of paving unless otherwise specified by the Owner. Record the locations where the samples are taken to correlate with subsequent testing.
  - 4. Test one cured concrete cylinder from each sample set per ASTM C39 at 7-day and 28-day periods and report the type of failure and compressive strength at failure. Note the third cylinder is to be stored for future use.
  - 5. Test slump in-field per ASTM C143 for each sample.
  - 6. Test mix for air-entrainment per ASTM C231 for each sample.

#### 26.16 PROTECTION

- A. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury. Refer to Section 3.14 for additional detail.
- B. Do not permit vehicular traffic over paving for a minimum of 14 days after finishing.

END OF SECTION



## GUARANTEE FOR CONCRETE PAVEMENT

We hereby guarantee that the Concrete Pavement which we have installed at \_\_\_\_\_ for has been done in strict accordance with the Drawings and Specifications. We will repair or replace, or agree to have repaired or replaced, all Work which may prove to be defective in workmanship or materials. We will repair or replace, or agree to have repaired or replaced, any adjacent Work which required repair or replacement because of our defective Work. We Guarantee the Work for two years from the date of acceptance by the Owner.

Failure to comply with the above paragraph within 10 days after receipt of written notice from the Owner, or failure to work with diligence, authorizes the Owner to proceed with repair of the defective Work. We shall pay the costs and charges for the repairs along with interest at the maximum rate permitted by law upon demand. If we fail to fulfill the preceding obligation, and if the Owner brings an action to enforce this Guarantee, we agree to pay the Owner's reasonable attorney fees incurred.

### CONTRACTOR'S SIGNATURE

- (a) The Paving Contractor shall execute the Guarantee Form as shown above.
- (b) All Manufacturers' Warranties for materials shall be filled out, dated, signed, and submitted to the Owner.

DATE:

CONTRACTOR:

STREET ADDRESS:

CITY, STATE, ZIP:

AGENT:





### GUARANTEE FOR CONCRETE CURB

We hereby guarantee that the Concrete Curb which we have installed at \_\_\_\_\_ for has been done in strict accordance with the Drawings and Specifications. We will repair or replace, or agree to have repaired or replaced, all Work which may prove to be defective in workmanship or materials. We will repair or replace, or agree to have repaired or replaced, any adjacent Work which required repair or replacement because of our defective Work. We guarantee the Work for two years from the date of acceptance by the Owner.

Failure to comply with the above paragraph within 10 days after receipt of written notice from the Owner, or failure to work with diligence, authorizes the Owner to proceed with repair of the defective Work. We shall pay the costs and charges for the repairs along with interest at the maximum rate permitted by law upon demand. If we fail to fulfill the preceding obligation, and if the Owner brings an action to enforce this guarantee, we agree to pay the Owner's reasonable attorney fees incurred.

### CONTRACTOR'S SIGNATURE

- (a) The Paving Contractor shall execute the Guarantee Form as shown above.
- (b) All Manufacturers' Warranties for materials shall be filled out, dated, signed, and submitted to the Owner.

DATE:

CONTRACTOR:

STREET ADDRESS:

CITY, STATE, ZIP:

AGENT:

### GUARANTEE FOR CONCRETE SIDEWALK

We hereby guarantee that the Concrete Sidewalk which we have installed at \_\_\_\_\_ for has been done in strict accordance with the Drawings and Specifications. We will repair or replace, or agree to have



repaired or replaced, all Work which may prove to be defective in workmanship or materials. We will repair or replace, or agree to have repaired or replaced, any adjacent Work which required repair or replacement because of our defective Work. We Guarantee the Work for two years from the date of acceptance by the Owner.

Failure to comply with the above paragraph within 10 days after receipt of written notice from the Owner, or failure to Work with diligence authorizes the Owner to proceed with repair of the defective Work. We shall pay the costs and charges for the repairs along with interest at the maximum rate permitted by law upon demand. If we fail to fulfill the preceding obligation, and if the Owner brings an action to enforce this Guarantee, we agree to pay the Owner's reasonable attorney fees incurred.

#### CONTRACTOR'S SIGNATURE

- (a) The Paving Contractor shall execute the Guarantee Form as shown above.
- (b) All Manufacturers' Warranties for materials shall be filled out, dated, signed and submitted to Owner.

END OF SECTION



## PAVEMENT STRIPING

### PART 27 GENERAL

#### 27.1 SUMMARY

- A. Section Includes:
  - 1. Pavement lines and markings.
  - 2. Paint.
- B. Related Sections:
  - 1. Section 32 12 16 - Asphalt Paving.

#### 27.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO M247 - Standard Specification for Glass Beads Used in Traffic Paint.

#### 27.3 PERFORMANCE REQUIREMENTS

- A. Paint Adhesion: Adhere to road surface forming smooth continuous film one minute after application.
- B. Paint Drying: Tack free by touch so as not to require coning or other traffic control devices to prevent transfer by vehicle tires within two minutes after application.

#### 27.4 SUBMITTALS

- A. Product Data: Submit paint formulation for each type of paint.
- B. Manufacturer's Installation Instructions: Submit instructions for application temperatures, eradication requirements, application rate, line thickness, type of glass beads, bead embedment and bead application rate, and any other data on proper installation.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

#### 27.5 QUALITY ASSURANCE

- A. Perform Work in accordance with local governing agency standards.

#### 27.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.



- B. Invert containers several days prior to use when paint has been stored more than 2 months. Minimize exposure to air when transferring paint. Seal drums and tanks when not in use.

## 27.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.
- C. Do not apply paint when temperatures are expected to fall below 40 degrees F for 24 hours after application.
- D. Volatile Organic Content (VOC). Do not exceed State or Environmental Protection Agency maximum VOC on traffic paint.

## PART 28 PRODUCTS

### 28.1 PAINTED PAVEMENT MARKINGS

- A. Furnish materials in accordance with local governing agency standards.
- B. 4" wide dashed center line road marking shall be yellow as shown on the plans.
- C. Sharrow Marking shall be white as shown on the plans.

### 28.2 EQUIPMENT

- A. Equipment:
  - 1. For application of crosswalks, intersections, stop lines, legends and other miscellaneous items by walk behind strippers, hand spray or stencil trucks, apply with equipment meeting requirements of this section. Do not use hand brushes or rollers.

## PART 29 EXECUTION

### 29.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Do not apply paint to pavement surfaces until it has cured for 28 days, unless approved by Owner.

### 29.2 PREPARATION

- A. Maintenance and Protection of Traffic:



1. Prevent interference with marking operations and to prevent traffic on newly applied markings before markings dry.
  2. Maintain access to existing businesses, and other properties requiring access.
- B. Surface Preparation.
1. Clean and dry paved surface prior to painting.
  2. Blow or sweep surface free of dirt, debris, oil, grease or gasoline or other material that would adversely affect paint bonding with pavement.

### 29.3 EXISTING WORK

- A. Remove existing markings in an acceptable manner. Do not remove existing pavement markings by painting over with blank paint. Remove by methods that will cause least damage to pavement structure or pavement surface. Satisfactorily repair any pavement or surface damage caused by removal methods.
- B. Clean and repair existing lines and legends.

### 29.4 APPLICATION

- A. Agitate paint for 1-15 minutes prior to application to ensure even distribution of paint pigment.
- B. Dispense paint per manufacturer's recommendations to a wet-film thickness of 15 mils, except dispense edge markings to wet-film thickness of 12 mils.
- C. Apply markings to indicated dimensions at indicated locations.
- D. Prevent splattering and over spray when applying markings.
- E. Unless material is track free at end of paint application, use traffic cones to protect markings from traffic until track free. When vehicle crosses a marking and tracks it or when splattering or over spray occurs, eradicate affected marking and resultant tracking and apply new markings.
- F. Collect and legally dispose of residues from painting operations.
- G. Install Work in accordance with local governing agency standards.

### 29.5 APPLICATION TOLERANCES

- A. Maximum Variation from Wet Film Thickness: 1 mil.
- B. Maximum Variation from Wet Paint Line Width: Plus or minus 1/8 inch.
- C. Maximum Variation from Specified Application Temperature: Plus or minus 5 degrees F



## 29.6 FIELD QUALITY CONTROL

- A. Inspect for incorrect location, insufficient thickness, line width, coverage, retention, uncured or discolored material, and insufficient bonding.
- B. Repair lines and markings, which after application and curing do not meet following criteria:
  - 1. Incorrect Location: Remove and replace incorrectly placed patterns.
  - 2. Insufficient Thickness, Line Width, Paint Coverage, or Retention: Prepare defective material by acceptably grinding or blast cleaning to remove substantial amount of beads and to roughen marking surface. Remove loose particles and debris. Apply new markings on cleaned surface in accordance with this Section.
  - 3. Uncured or Discolored Material, Insufficient Bonding: Remove defective markings in accordance with this Section and clean pavement surface one foot beyond affected area. Apply new markings on cleaned surface in accordance with this Section.
- C. When eradication of existing paint lines is necessary, eradicate by shot blast or water blast method. Do not gouge or groove pavement more than 1/16 inch during removal. Limit area of removal to area of marking plus 1 inch on all sides. Prevent damage to transverse and longitudinal joint sealers, and repair any damage according to requirements in Section 32 13 13 or Section 32 12 16.

## 29.7 PROTECTION OF FINISHED WORK

- A. Protect painted pavement markings from vehicular and pedestrian traffic until paint is dry and track free. Follow manufacturer's recommendations or use minimum of 30 minutes. Consider barrier cones as satisfactory protection for materials requiring more than 2 minutes dry time.

END OF SECTION

## GUARDRAIL

### PART 30 GENERAL

#### 30.1 SUMMARY

- A. Section Includes:
  - 1. MDOT Guardrail 'Type B Modified'
  - 2. MDOT Guardrail 'Type B'
  - 3. Delineators.
  - 4. Attenuators.
- B. Related Section:
  - 1. Section 34 00 00 – Signage



## PART 31 PRODUCTS

### 31.1 MATERIALS

- A. MDOT 'Type B Modified' Guardrail – Bicycle Path (modified as shown in details per Wayne County Department of Public Services with the addition of Standard Beam Element, Post Bolt Washer – in place of Round Washer, and post bolt Head installed on the bicycle path side).
- B. MDOT 'Type B' Guardrail – Refer to MDOT standard plans R-60 series for details.
- C. Composite Posts.
- D. Composite block outs.
- E. Wisconsin type reflectors are to be used.
- F. Approach ends Type 1T, or current MDOT specification.
- G. Departing ends Type TD, or current MDOT specification.

### 31.2 PRODUCTS

- A. Butterfly Guardrail Delineators shall be made with material: 0.080 Aluminum High Intensity Prismatic Reflectivity. Standard Size 3". Company: cpsigns.com. Part Number: (Call to place order).
- B. Cement Wall Barrier/Bridge Delineators shall be 4" x 4". Company: orange-traffic-cones.com. Part Number: Yellow/Amber: PAVEMENT MARKER2WAYAMBERABS, White: PAVEMENTMARKER2WAYCLEARABS.

### 31.3 ATTENUATORS

- A. Crash cushions shall be crashworthy. They shall also be designed for each application to stop or redirect errant vehicles under prescribed conditions. Crash cushions shall be periodically inspected to verify that they have not been hit or damaged. Damaged crash cushions shall be promptly repaired or replaced to maintain their crashworthiness.
- B. Stationary crash cushions shall be designed for the specific application intended.

## PART 32 EXECUTION

### 32.1 INSTALLATION

- A. Post spacing is to be 6'-3", unless at bridge abutments, end treatments, etc., where the spacing may be less. Nominal Height is 42". Front Slopes steeper than 1 on 4 will have guardrail.



- B. Butterfly Guardrail Delineators when mounted on the face of or on top of guardrails or other longitudinal barriers, delineators may be mounted at a lower elevation than the normal delineator height recommended. Spacing shall be 20 ft. or 50 ft. depending on application.
- C. Cement Wall Barrier/Bridge Delineators when mounted on the face of or on top of guardrails or other longitudinal barriers, delineators may be mounted at a lower elevation than the normal delineator height recommended. Spacing shall be 20 ft. or 50 ft. depending on application. Concrete Bridge Barrier and Concrete wall barrier delineation shall be mounted 30" from road surface on center. (12" from top of barrier on center.
- D. Chevrons to be installed on all Attenuators.

END OF SECTION

## **SAFETY RAILING**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Safety Railing.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
    - a. Railing, posts, and fittings.
    - b. Rail reinforcements and attachments.
- B. Shop Drawings: For each type of rail assembly.
  - 1. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Initial Selection: For each type of factory-applied finish.
- D. Delegated-Design Submittal: For structural performance of safety railing frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.





#### 1.4 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for safety railing shown on drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

#### 1.5 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of safety railing that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to comply with performance requirements.
    - b. Deterioration of materials beyond normal weathering.
  - 2. Warranty Period: 5 years from date of Substantial Completion.

### PART 2 PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Safety railing and frameworks shall withstand the design wind loads and stresses for fence the fence height and under exposure conditions indicated according to ASCE/SEI 7.

#### 2.2 SAFETY RAILING FRAMEWORK

- A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 based on the following:
  - 1. Fence Height: 42" max.
    - a. Posts: 4" x 4" posts spaced 6' o.c.
  - 2. Horizontal Framework Members: 2 x 8 hand rail (1), 2 x " rail (2), and 2 x 4 rail (2) per 6' section. Bottom rail is to be 4" higher than grade, remaining rails are to have a max. 6" space between.
    - a. natural wood finish
  - 3. All wood shall be kiln dried, pressure treated southern yellow pine. Posts into ground shall be NO. 2 grade 0.6 PCF, rails shall be NO. 1Grade 0.25 PCF
- B. Hardware: Hand rail shall be attached with stainless steel screws. 2x4 rails and 2 x6 rails shall be attached with 1/2" Carriage bolts, galvanized.



## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
  - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
  - 2. Locate and protect all underground utilities prior to work.
  - 3. Locate and protect retaining wall drainage pipe.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Stake locations of safety railing and terminal posts. Do not exceed intervals of 500 feet (152 m) or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

### 3.3 SAFETY RAILING INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- B. Post Setting: Set posts on top of 4" compacted MDOT 21AA stone base at indicated spacing and depth.
  - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during backfilling process.
  - 2. Compacted Backfill: Place 8" diameter of compacted MDOT 21AA stone backfill around post to dimensions indicated and vibrate or tamp for consolidation.
- C. Line Posts: Space line posts uniformly at 6' o.c.

END OF SECTION

## SEGMENTAL RETAINING WALLS

## PART 4 GENERAL

### 4.1 SUMMARY

- A. This Section includes single depth segmental retaining walls with soil reinforcement.
- B. Related Requirements:



1. Section 312000 "Earth Moving" for excavation for segmental retaining walls.

#### 4.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
- C. Samples: For each color and texture of concrete unit specified.
- D. Delegated-Design Submittal: For segmental retaining walls.

#### 4.3 INFORMATIONAL SUBMITTALS

- A. Research/Evaluation Reports: For segmental retaining wall units (and soil reinforcement), from ICC-ES.
- B. Preconstruction test reports.
- C. Field quality-control reports.

#### 4.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.

#### 4.5 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform the following preconstruction testing:
  1. Test soil reinforcement and backfill materials for pullout resistance according to ASTM D6706.
  2. Test soil reinforcement and backfill materials for coefficient of friction according to ASTM D5321.

### PART 5 PRODUCTS

#### 5.1 PERFORMANCE REQUIREMENTS

- A. Basis of Design: Design of segmental retaining walls is based on products indicated. If comparable products of another manufacturer are proposed, engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design segmental retaining walls.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design segmental retaining walls.
- C. Compliance Review: Qualified professional engineer responsible for segmental retaining wall design shall review and approve submittals and source and field quality-control reports for compliance of materials and construction with design.



- D. Structural Performance: Engineering design shall be based on the following loads and be according to NCMA's "Design Manual for Segmental Retaining Walls."

## 5.2 SEGMENTAL RETAINING WALL UNITS

- A. Concrete Units: ASTM C1372, Normal Weight, except that maximum water absorption shall not exceed 7 percent by weight and units shall not differ in height more than plus or minus 1/16 inch from specified dimension.
- B. Retain first subparagraph below for projects in areas where walls are subject to freezing.
  - 1. Provide units that comply with requirements in ASTM C1372 for freeze-thaw durability.
  - 2. Provide units that interlock with courses above and below by means of integral lugs, lips, or tongues and grooves, pins, clips, splines, and/or hollow cores filled with drainage fill.
- C. Color: As indicated by manufacturer's designations.
- D. Shape and Texture: Provide units with machine-split textured, smooth, flat exposed face, or shaped exposed face with deeply beveled vertical edges.
- E. Shape and Texture: Provide units matching basic shape, dimensions, and face texture of basis-of-design product.

## 5.3 INSTALLATION MATERIALS

- A. Pins and Clips: Product supplied by segmental retaining wall unit manufacturer for use with units provided, made from nondegrading polymer reinforced with glass fibers.
- B. Cap Adhesive: Product supplied or recommended by segmental retaining wall unit manufacturer for adhering cap units to units below.
- C. Leveling Base: Comply with requirements in Section 312000 "Earth Moving" for base / drainage course.
- D. Drainage Fill: Comply with requirements in Section 312000 "Earth Moving" for drainage course.
- E. Soil Fill: Comply with requirements in Section 312000 "Earth Moving" for satisfactory soils.
- F. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.
- G. Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent.
  - 1. Apparent Opening Size: No. 70 to 100 (0.212- to 0.150-mm) sieve, maximum; ASTM D4751.
  - 2. Minimum Grab Tensile Strength: 110 lb; ASTM D4632.
- H. Soil Reinforcement: Product specifically manufactured for use as soil reinforcement and as follows:
  - 1. Product Type: Knitted or woven geogrid made from polyester yarns with a protective coating. Molded geogrid made from high-density polyethylene. Woven geotextile made from polyamides, polyesters, or polyolefins.



## PART 6 EXECUTION

### 6.1 RETAINING WALL INSTALLATION

- A. General: Place units according to NCMA's "Segmental Retaining Wall Installation Guide" and segmental retaining wall unit manufacturer's written instructions.
  - 1. Lay units in pattern per manufacturer's requirements.
  - 2. Form corners and ends by using special units, cutting units with motor-driven saw, or splitting units with mason's hammer and chisel.
- B. Leveling Base: Place and compact base material to thickness indicated and with not less than 95 percent maximum dry unit weight according to ASTM D698.
- C. First Course: Place first course of segmental retaining wall units for full length of wall. Place units in firm contact with each other, properly aligned and level.
  - 1. Tamp units into leveling base as necessary to bring tops of units into a level plane.
- D. Subsequent Courses: Remove excess fill and debris from tops of units in course below. Place units in firm contact, properly aligned, and directly on course below.
- E. Cap Units: Place cap units and secure with cap adhesive.

### 6.2 FILL PLACEMENT

- A. General: Comply with requirements in Section 312000 "Earth Moving," with NCMA's "Segmental Retaining Wall Installation Guide," and with segmental retaining wall unit manufacturer's written instructions.
- B. Fill voids between and within units with drainage fill. Place fill as each course of units is laid.
- C. Place, spread, and compact drainage fill and soil fill in uniform lifts for full width and length of embankment as wall is laid. Place and compact fills without disturbing alignment of units. Where both sides of wall are indicated to be filled, place fills on both sides at same time. Begin at wall, and place and spread fills toward embankment.
  - 1. Use only hand-operated compaction equipment within 48 inches of wall, or one-half of height above bottom of wall, whichever is greater.
  - 2. Compact reinforced-soil fill to not less than 95 percent maximum dry unit weight according to ASTM D698.
    - a. In areas where only hand-operated compaction equipment is allowed, compact fills to not less than 90 percent maximum dry unit weight according to ASTM D698.
  - 3. Compact nonreinforced-soil fill to comply with Section 312000 "Earth Moving."
- D. Place drainage geotextile against back of wall, and place layer of drainage fill at least 12 inches wide behind drainage geotextile to within 12 inches of finished grade. Place another layer of drainage geotextile between drainage fill and soil fill.
- E. Place a layer of drainage fill at least 12 inches wide behind wall to within 12 inches of finished grade. Place a layer of drainage geotextile between drainage fill and soil fill.



- F. Wrap subdrainage pipe with filter fabric and place in drainage fill as indicated, sloped not less than 0.5 percent to drain.
- G. Place impervious fill over top edge of drainage fill layer.
- H. Place soil reinforcement in horizontal joints of retaining wall where indicated and according to soil-reinforcement manufacturer's written instructions. Embed reinforcement a minimum of 8 inches into retaining wall and stretch tight over compacted backfill. Anchor soil reinforcement before placing fill.
  - 1. Place additional soil reinforcement at corners and curved walls to provide continuous reinforcement.
  - 2. Place geosynthetics with seams, if any, oriented perpendicular to segmental retaining walls.
  - 3. Do not dump fill material directly from trucks onto geosynthetics.
  - 4. Place at least 6 inches of fill over reinforcement before compacting with tracked vehicles or 4 inches before compacting with rubber-tired vehicles.
  - 5. Do not turn vehicles on fill until first layer of fill is compacted and second layer is placed over each soil-reinforcement layer.

### 6.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Comply with requirements in Section 312000 "Earth Moving" for field quality control.
  - 1. In each compacted backfill layer, perform at least one field in-place compaction test for each 150 feet or less of segmental retaining wall length.
  - 2. In each compacted backfill layer, perform at least one field in-place compaction test for each 24 inches of fill depth and each 50 feet or less of segmental retaining wall length.

END OF SECTION

## SITE FURNISHINGS

### PART 33 GENERAL

#### 33.1 SUMMARY

- A. Furnish and install the following:
  - 1. Regulatory/Safety Signage & Wayfinding Signage
- B. Related Sections:
  - 1. Section 32 13 13 – Concrete requirements.

#### 33.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.



- B. Product Data: For each type of product.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Samples for Initial Selection: For units with factory-applied finishes.
- E. Samples for Verification: For each type of exposed finish, not less than 6-inch (152-mm) long linear components and 4-inch (102-mm) square sheet components.
- F. Product Schedule: For site furnishings. Use same designations indicated on drawings.

### 33.3 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For site furnishings to include in maintenance manuals.

## PART 34 PRODUCTS

### 2.1 REGULATORY/SAFETY SIGNAGE & WAYFINDING SIGNAGE MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; free of surface blemishes and complying with the following:
  - 1. Rolled or Cold-Finished Bars, Rods, and Wire:  
ASTM B 211 (ASTM B 211M).
  - 2. Extruded Bars, Rods, Wire, Profiles, and Tubes:  
ASTM B 221 (ASTM B 221M).
  - 3. Structural Pipe and Tube: ASTM B 429/B 429M.
  - 4. Sheet and Plate: ASTM B 209 (ASTM B 209M).
  - 5. Castings: ASTM B 26/B 26M.
- B. Steel and Iron: Free of surface blemishes and complying with the following:
  - 1. Plates, Shapes, and Bars: ASTM A 36/A 36M.
  - 2. Steel Pipe: Standard-weight steel pipe complying with  
ASTM A 53/A 53M, or electric-resistance-welded pipe complying with ASTM A 135/A 135M.
  - 3. Tubing: Cold-formed steel tubing complying with  
ASTM A 500/A 500M.
  - 4. Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A 513, or steel tubing fabricated from steel complying with ASTM A 1011/A 1011M and complying with dimensional tolerances in ASTM A 500/A 500M; zinc coated internally and externally.
  - 5. Sheet: Commercial steel sheet complying with  
ASTM A 1011/A 1011M.
  - 6. Perforated Metal: From steel sheet, not less than  
0.120-inch (3.0-mm) nominal thickness; manufacturer's standard perforation pattern.
  - 7. Expanded Metal: Carbon-steel sheets, deburred after  
expansion, and complying with ASTM F 1267.
  - 8. Malleable-Iron Castings: ASTM A 47/A 47M, grade as  
recommended by fabricator for type of use intended.



9. Gray-Iron Castings: ASTM A 48/A 48M, Class 200.
- C. Anchors, Fasteners, Fittings, and Hardware: Stainless steel commercial quality, tamperproof, vandal and theft resistant.
- D. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M; recommended in writing by manufacturer, for exterior applications.
- E. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound; resistant to erosion from water exposure without needing protection by a sealer or waterproof coating; recommended in writing by manufacturer, for exterior applications.
- F. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:
1. Zinc-Coated Tubing: External, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. (0.27 kg/sq. m) of zinc after welding, a chromate conversion coating, and a clear, polymer film. Internal, same as external or consisting of 81 percent zinc pigmented coating, not less than 0.3 mil (0.0076 mm) thick.
  2. Hot-Dip Galvanizing: According to ASTM A 123/A 123M, ASTM A 153/A 153M, or ASTM A 924/A 924M.

## 2.2 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.
- D. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- E. Factory Assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.





## 2.3 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.4 ALUMINUM FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

## 2.5 STEEL AND GALVANIZED-STEEL FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.
- B. PVC Finish: Manufacturer's standard, UV-light stabilized, mold-resistant, slip-resistant, matte-textured, dipped or sprayed-on, PVC-plastisol finish, with flame retardant added; complying with coating manufacturer's written instructions for pretreatment, application, and minimum dry film thickness.

## 2.6 IRON FINISHES

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

## 2.7 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
- C. Run directional finishes with long dimension of each piece.
- D. Directional Satin Finish: No 4.
- E. Dull Satin Finish: No. 6.

## PART 35 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.



- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- C. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- D. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- E. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
- F. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- G. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch (19 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

END OF SECTION

## LANDSCAPE GRADING

### PART 36 GENERAL

#### 36.1 SUMMARY

- A. Section Includes:
  - 1. Final grading of topsoil for seeding.
- B. Related Sections:
  - 1. Section 31 22 13 - Rough Grading
  - 2. Section 32 92 19 - Seeding

#### 36.2 PROJECT CONDITIONS

- A. Protect existing trees, plants, lawns and other features designated to remain as part of the landscaping work.
- B. Promptly repair damage to adjacent facilities caused by topsoil operations. Cost of repair at Subcontractor's expense.



## PART 37 PRODUCTS

### 37.1 MATERIALS

- A. Existing topsoil: existing topsoil stripped during site preparation shall be utilized. All processing, cleaning, and preparation of this stored topsoil to render it acceptable for use is the responsibility of the Contractor.
- B. Topsoil, shall be fertile, friable, dark in color and representative of local productive soil, capable of sustaining vigorous plant growth and free of clay lumps, subsoil, noxious weeds or other foreign matter such as stones of 1" in any dimension, roots, sticks, and other extraneous material: not frozen or muddy.

## PART 38 EXECUTION

### 38.1 EXAMINATION

- A. Do not commence work of this Section until grading tolerances specified are met.

### 38.2 PREPARATION

- A. Before placing topsoil in lawn areas, remove rocks larger than 2 inch in any dimension and foreign matter such as building rubble, wire, cans, sticks, concrete, etc.
- B. Prior to placing topsoil, remove any imported base material present in lawn areas down to natural subgrade.

### 38.3 PERFORMANCE

- A. Site Tolerances:
  - 1. Total Topsoil Depth
    - a. Lawn restoration areas – 3" inches minimum compacted.
  - 2. Elevation of topsoil relative to walks or curbs
    - a. Seeded lawn areas – ¼ inch below
- B. Redistribute approved existing topsoil stored on site as a result of rough grading or imported topsoil. Remove organic material, rocks and clods greater than 1 inch in any dimension, and other objectionable materials.
- C. Regardless of finish grading elevations indicated, it is intended that grading be such that proper drainage of surface water away from paved areas will occur and that no low areas are created to allow ponding on the trail surface.
- D. Rake all topsoil to remove clods, rocks, weeds and debris.
- E. Grade and shape area to bring surface to true uniform planes free from irregularities and to provide proper drainage and slopes per plans.



#### 38.4 CLEANING

- A. Upon completion of topsoil operation, clean areas within contract limits, remove tools, equipment, and haul all excess topsoil off-site. Site shall be clear, clean, free of debris, and suitable for site work operations.

END OF SECTION

### SEEDING

#### PART 39 GENERAL

##### 39.1 SUMMARY

- A. Section Includes:
  - 1. Fertilizing
  - 2. Seeding
  - 3. Hydroseeding
  - 4. Mulching
  - 5. Maintenance
- B. Related Sections:
  - 1. Section 31 22 13 - Rough Grading
  - 2. Section 31 05 16 – Soils and Aggregates
  - 3. Section 32 91 19 - Landscape Grading

##### 39.2 REFERENCES

- A. ASTM International:
  - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

##### 39.3 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.

##### 39.4 SUBMITTALS

- A. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.
- B. Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentage of purity, germination, and weed seed for each grass species.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.



39.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height and types, application frequency, and recommended coverage of fertilizer.
- B. Warranty: As specified in Landscape Maintenance and Warranty Standards Section.

39.6 QUALITY ASSURANCE

- A. Provide seed mixture in original unopened containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging. Store in manner to prevent wetting and deterioration.
- B. Perform Work in accordance with local governing agency standards.

39.7 QUALIFICATIONS

- A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years' experience.
- B. Installer: Company specializing in performing work of this section with minimum three years' experience.

39.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 40 PRODUCTS

40.1 SEED MIXTURE

- A. Lawn seeded areas: Fresh, clean and new crop seed mixture. Mixed by approved methods.
- B. Seed mixture composed of the following varieties, mixed to the specified proportions by weight and tested to minimum percentages of purity and germination.
- C. Non-irrigated Seed Mixture proportioned by volume as indicated below:

SEED TYPE	PROPORTION	PURITY	GERMINATION
Penn Lawn Fescue	60%	90%	85%
Kentucky 28# common Bluegrass	20%	90%	90%
Pennfine Perennial Rye	20%	90%	90%



#### 40.2 ACCESSORIES

- A. Fertilizer: granular, non-burning product composed of not less than 50% organic slow acting guaranteed analysis professional fertilizer.
- B. Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100% mesh sieve and 90% will pass through a 20% mess sieve.
- C. Straw Mulch: Used in crimping process only. Clean oat or wheat straw, well seasoned before bailing, free from mature seed-bearing status, or roots of prohibited or noxious weeds.
- D. Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.

#### 40.3 SOURCE QUALITY CONTROL

- A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.
- B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.
- C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

### PART 41 EXECUTION

#### 41.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify prepared soil base is ready to receive the Work of this section.
- C. Work notification: Notify Landscape Architect or General Contractor's representative at least seven (7) working days prior to start of seeding operation.
- D. Protect existing utilities, paving, and other facilities from damage caused by seeding operations.
- E. Perform seeding work only after planting and other work affecting ground surface has been completed.
- F. Provide hose and lawn watering equipment as required.

#### 41.2 SURFACE PREPARATION AND FERTILIZING

- A. Treat Lawn areas if required with herbicide per manufacturer recommendations to kill existing vegetation prior to seeding.



- B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.
- C. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.
- D. Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.
- E. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more than 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.
- F. Apply lime at application rate recommended by soil analysis. Work lime thoroughly into topsoil.
- G. Apply fertilizer at application rate of 1 lb. of actual nitrogen per 1,000 sq. ft. (43 lbs/acre).
- H. Apply after smooth raking of topsoil and prior to roller compaction.
- I. Do not apply fertilizer at same time or with same machine used to apply seed.
- J. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
- K. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.
- L. After lawn areas have been prepared, take no heavy objects over them except lawn rollers.
- M. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs according to soil type.
- N. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.
- O. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.

#### 41.3 SEEDING

- A. Seed lawns only between April 1 and June 1, and fall seeding between August 15 and October 15, or at such other times acceptable to Landscape Architect.
- B. Seed immediately after preparation of bed. Seed indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.
- C. Perform seeding operations when the soil is dry and when the winds do not exceed five (5) miles per hour velocity.



- D. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two (2) directions, at right angles to each other.
- E. Sow seed at a rate of 300 lbs./acre.
- F. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/8" of soil. Roll with light lawn roller.
- G. Provide soil erosion planting mat where grade conditions require stabilization of the planting area.

#### 41.4 MULCHING

- A. Place straw mulch on seeded areas within 24 hours after seeding.
- B. Place straw mulch uniformly in a continuous blanket at a rate of 2-1/2 tons per acre, or two (2) 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when acceptable to the Landscape Architect.
- C. Crimp straw into soil by use of a "crimper". Two passes in alternate direction required. Alternative methods on areas too small for crimper must be approved by the Landscape Architect or Fiscal Agent's Representative.

#### 41.5 ESTABLISH LAWN

- A. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established.
- B. Damage to seeded area resulting from erosion to be repaired by Sub Contractor.
- C. In event Sub Contractor does not establish dense lawn during first germination period, return to project to re-fertilize and reseed to establish dense lawn.
- D. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn areas to produce a dense turf, as specified.

#### 41.6 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

#### 41.7 MAINTENANCE AND ACCEPTANCE

- A. Refer to Landscape Maintenance and Warranty Standards Section.

END OF SECTION





## LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Includes but not limited to:
1. Provide maintenance for new landscaping as described in Contract Documents.
  2. The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's representative and Landscape Architect.

### PART 2 PRODUCTS

Not Used

### PART 3 – EXECUTION

#### 3.1 PERFORMANCE

- A. Acceptance of Installation
1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.
    - a. Following the acceptance inspection, a punch list will be issued by the Landscape Architect.
    - b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall re-inspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.
    - c. At the time of acceptance all plant material shall be of vigorous health.
    - d. It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion.
    - e. If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost. These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty period, as outlined below.
  2. Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's representative and Landscape Architect provided work offered for inspection is complete, including maintenance as required.
  3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of this work



completed to date.

B. Project Warranty

1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.
2. The Landscape Subcontractor shall guarantee all seeded areas through construction and for a period of one (1) year after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse, or damage by others or unusual phenomena or incidents which are beyond Landscape Subcontractor's control.

C. Maintenance During One (1) Year Project Warranty

1. To ensure guarantee standards, the following maintenance procedures for turf areas shall be executed during construction and for the full Project Warranty Periods.

D. Maintenance of Seeded Lawn Areas

1. The Landscape Contractor shall maintain seeded lawn areas.
  - a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than six inches of area up to a maximum of 1% of the total seeded lawn area is established.
  - b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established; regardless of what season the seed was installed.
2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows). When lawn reaches 3" in height it shall be cut to 2" in height.
3. The Owner assumes cutting responsibilities following the Acceptance of Installation of the seeded lawn.
4. At conclusion of the Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.

E. FINAL ACCEPTANCE UPON CONCLUSION OF THE WARRANTY PERIOD

1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect, and Owner's Representative shall be present.
2. After the inspection for final acceptance, a punch list will be issued by the Landscape Architect. Upon completion of all punch list items, the Landscape Architect and the Owner's Representative shall re-inspect the project and issue a Written Statement of Final Acceptance.

END OF SECTION



### **3.3 Contract Term:**

Commencing upon contract award and end upon the delivery of all required goods/services.

### **3.4 Additional Specifications:**

#### **3.4.1 Service Work Schedules:**

When the Contractor is onsite at County facilities the Contractor will observe the general operating hours of the facility, each facility may have different operating hours. If the Contractor and the County contact at a facility agree to access outside of general operating hours those agreements are between the Contractor and the County contact and not with the County.

#### **3.4.2 Customer Service**

Contractor provided professionals assigned to the engagement will reply to email or phone calls timely.

#### **3.4.3 Roles and Responsibilities**

The Contractor will not subcontract the responsibilities outlined in this RFP without prior written approval (excluding subcontractor(s) disclosed in the response to this RFP).

#### **3.4.4 Delivery Acceptance Criteria**

The designated Wayne County representative shall provide the final review and approval of the required services/productions outlined in this RFP.



## SECTION 4.0 – BIDDING, EVALUATION, SELECTION & AWARD PROCESS

This section contains key information as well as instructions to proposers on how to prepare and submit their proposal:

### 4.1 Wayne County Responsibility

Wayne County is not responsible for representations made by any of its officers or employees prior to the execution of the Contract unless such understanding or representation is included in the Contract.

### 4.2 Truth and Accuracy of Representations

The Wayne County Procurement Director or designee may reject any proposal that is evaluated and determined to include false, misleading, incomplete, or deceptively unresponsive statements.

### 4.3 Proposer Q&A

Proposers may submit written questions regarding this RFP, by the questions deadline date, to the individual identified on the cover page. All questions, without identifying the submitting company, will be compiled with the appropriate answers and issued as an addendum to the RFP.

When submitting questions please specify the RFP section and paragraph number, and quote the language that prompted the question. This will ensure that the issue can be quickly found in the RFP. Wayne County reserves the right to group similar questions when providing answers.

Wayne County may modify the RFP at any time during the proposal process. All changes to the RFP will be posted as an addendum under the proposal number and each posting officially revises the RFP.

### 4.4 Preparation of the Proposal

Each Proposer must submit a complete proposal in response to this RFP. The proposal must remain valid for at least 180 days from the due date for responses to this RFP.

There is no contract until the agreement is approved by the Wayne County Commission (if such approval is required by the Procurement Ordinance) and executed by the County Executive.

The Proposer will be responsible for completing all documents and forms listed under Part 2, Section 5, of this RFP, which is titled Supplier Submittal Requirements. If not provided, proposer will be required to download the forms. Complete the forms, including signature, and then upload the forms. These documents and forms are as follows:



- Documents demonstrating minimum qualifications – It is expected that a Proposer will include completed forms to demonstrate minimum qualification requirements are met, which include:
  - References
  - Business Information Questionnaire (included in the Ethics in Contracting Form)
  - Resumes for key personnel
  - Licenses/Certificates
- Signed Proposal Form – The Proposer **must** sign the Proposal Form. Each signature represents binding commitment upon the Proposer to provide the goods and/or services offered to the County if the Proposer is determined to be the most responsive and responsible Proposer.
- Pricing Sheet – The Proposer **must** use the Pricing Sheet that accompanies this RFP. Any other pricing format submittal may result in disqualification.
- Proposal Guarantee – A bid bond in the amount of 5% of the total price of the proposal **must** be submitted with the proposal
- Response to Scope of Work Requirements Form - The Proposer shall include a detailed response to the outlined requirements.
- Terms & Conditions Form – Proposer will review terms and conditions. Any exceptions to the terms and conditions need to be identified in the proposal otherwise it will be determined that the terms and conditions are acceptable to the Proposer.
- First Tier Subcontractor Designation Form – This form is required to be completed by all prime contractors for contracts greater than \$50,000.
- Ethics in Contracting Vendor Form – This form is required to disclose any relationships between the principal/managing members of the proposing company and Wayne County employees for all contracts greater than \$10,000.
- W-9 Form – This form is required to verify the proposer's federal tax identification (EIN) number and legal business name.
- Fair Employment Practices (FEP) Certificate – A current FEP certificate is required of all companies that do business with Wayne County. If the proposer does not have this certification, an on-line application shall be submitted to the Human Relations Department at the time of proposal submission for all contracts greater than \$50,000. Print a hard copy of your company's on-line application and submit with the proposal.
- Certificate of Insurance (COI) – A current COI is required, which lists, at minimum, commercial general liability limits and as applicable other insurance that may be required. The requirements for the resultant contract are listed in the Contract/Terms and Conditions attachment.



- DBE Form – This form is required to be completed for federally funded contracts and lists the DBE goal and DBE participation of certified prime and subcontractors.
- Debarment Form - This form is required to be completed for federally funded contracts and certifies the proposer's status as it pertains to federal debarment, suspension and responsibility matters.
- Evaluation Criteria – Proposer is to include any additional materials or documentation, which supports its ability to meet or exceed the Evaluation Criteria outlined in Section 4.10 of this RFP.

There are no unique formatting requirements. Information provided shall be organized and in a readable format.

#### 4.5 Proposal Submission Requirements

To be considered, the proposal must be prepared in the manner and detail specified in this RFP.

- 1) Proposals, all attachments, and any modifications or withdrawals, must be submitted electronically through the BidNet Direct (MITN) Bid System (<https://www.bidnetdirect.com/>). Proposers should provide the documents in a modifiable form (e.g., Microsoft Word or Excel), but have the option to also provide copies of any documents in a non-modifiable form (e.g. PDF) with the sole exception of any pricing which must be provided in Excel format, when an Excel Pricing Sheet is provided. Proposer's failure to submit a proposal as required may result in disqualification of such proposal. The proposal and attachments must be fully uploaded and submitted prior to the due date and time identified above.

Proposals received after the deadline will not be accepted.

**Do not wait until the last minute to submit the proposal, as the BidNet system requires the creation of an account and entry of certain information, in addition to uploading and submitting the materials. The BidNet system will not allow a proposal to be submitted after the due date and time identified on the cover page.**

- 2) The opening/downloading of a proposal does not constitute the County's acceptance of the Proposer as a responsive and responsible Proposer.
- 3) Submission of a proposal establishes a conclusive presumption that the Proposer is thoroughly familiar with the RFP, specifications and terms of the Form of Contract, and the County's Procurement Ordinance, and that the Proposer understands and agrees to abide by each and all of the stipulations and requirements contained therein.
- 4) Proposals sent by facsimile, telegraph, or email will not be considered.
- 5) All costs incurred in the preparation and presentations of the proposal, as well as any resulting contract, are the Proposer's sole responsibility; no such costs will be reimbursed to any Proposer. All documentation submitted with the proposal will become the property of the County.

#### 4.6 Duplicate Proposals

No more than one (1) proposal from any Proposer, including its subsidiaries, affiliated companies and franchisees will be considered by the County. In the event multiple proposals are submitted in violation of this provision, the County will have the right to determine which proposal will be considered, or at its sole option, reject all such multiple proposals.



#### **4.7 Withdrawal**

Proposals may be withdrawn through the BidNet Direct System prior to the proposal deadline indicated on the cover page of this RFP. No proposal may be withdrawn after the deadline for submission.

#### **4.8 Evaluation Process**

All Proposals will be reviewed for compliance with the mandatory minimum requirements stated within this RFP. Proposals not in compliance with the mandatory minimum requirements will be eliminated from further consideration.

- A. Wayne County may contact the Proposer for clarification of the Proposer's proposal.
- B. Wayne County may require the Proposer to submit additional and/or supporting materials
- C. Responsive proposals will be evaluated on the factors identified in this RFP. The Proposer(s) whose proposal is advantageous to the County, taking into consideration the evaluation factors, will be recommended for award approval.

#### **4.9 Evaluations and the Proposal Evaluation Committee**

Wayne County reserves the right to judge the contents of the proposals submitted pursuant to this RFP and to review, evaluate and select the successful proposal(s).

All requests for proposals shall be reviewed and evaluated by an Evaluation Committee approved by the Procurement Director. Evaluation Committees are usually comprised of at least three voting members, but they can be any size. Voting membership on the Evaluation Committee shall be limited to County employees; however, the Procurement Director, Procurement Officer, public officials and/or consultants under contract with Wayne County may sit as non-voting consulting members. (Bid Evaluator's Guide)

All proposals will be evaluated based on Section 4.10 below. All proposals will be scored and ranked in numerical sequence as outlined in the Bid Evaluator's Guide. Wayne County may also, at its option, invite proposers being evaluated to make an oral presentation or conduct site visits, if appropriate.

After a prospective supplier/contractor has been selected, Wayne County and the prospective supplier(s)/contractor(s) will negotiate a contract.

Each proposal that is timely received will be evaluated on its merit and completeness of all requested information. In preparing proposals, proposers are advised to rely only upon the contents of this RFP and accompanying documents and any written clarifications or addenda issued by the County. If a Proposer finds a discrepancy, error, or omission in the proposal package, or requires any written addendum thereto, the Proposer is requested to notify the Purchasing Contact noted on the cover page of this RFP, so that written clarification may be sent to all prospective proposers. The County is not responsible for oral representations. All questions must be submitted in writing to the Procurement Contact only before the Question Deadline indicated on the cover page of this document. All answers will be issued in the form of a written addendum.



Proposers shall not be provided any information about other proposals or prices or where the Proposer stands in relation to others at any time during the evaluation process. Any request for such information by a Proposer, its subcontractor or an affiliated party may be viewed as a compromise to the evaluation process and the requesting Proposer may be eliminated from further consideration.

#### **4.10 Evaluation Criteria**

##### **4.10.1 Experience & Qualifications (30 points)**

Samples of Evaluation Criteria and related submittal requirements are provided below:

- (a) Describe how you meet or exceed the minimum qualifications in the Scope of Work in this document.
- (b) Describe the experience (including years of experience) in providing similar services.
- (c) Provide at least three (3) references for similar projects, including name of establishment, address, dates of service, contact name and telephone number. Clearly indicate for the projects which, if any, of the proposed key personnel worked on each.
- (d) Describe the experience and qualifications of key personnel. Include detailed resumes.

##### **4.10.2 Work Plan and Timeline (20 points)**

- (a) Submit a detailed work plan.
- (b) Submit a proposed timeline, preferably in Gantt format.

##### **4.10.3 Project Cost (30 points)**

- (a) Complete the enclosed price sheet.
- (b) Provide a detail of how you arrived at this figure. Be sure to include breakdowns by position and hours, as well as detail of anticipated reimbursable expenses.

##### **4.10.4 Utilization of First Tier Subcontractors located in Wayne County (20 points)**

To receive additional equalization credits for first tier subcontractors, proposers must submit the following:

- (a) Please complete the "Human Relations First-Tier Subcontractor Form".
- (b) Provide CBE and/or TGCE certificates for subcontractor located in Wayne County.
- (c) Provide a description of the services that each first-tier subcontractor located in Wayne County will provide, total amount each subcontractor will be compensated, along with the percentage of contract award for each subcontractor. (This information is requested in the Form.)
- (d) A formal letter of intent between the Proposer and each first-tier subcontractor located in Wayne County formalizing the intent to subcontract is required, if awarded a contract pursuant to this RFP.





Depending on the amount of points assigned to the “utilization of subcontractor located in Wayne County” criteria, proposals shall receive a prorated number of the points based on the total percentage of subcontractors located in Wayne County that are utilized as set-forth in the “First-Tier Subcontractor Designation” form.

*(For Example: if the total points allocated for the “utilization of subcontractor located in Wayne County” criteria is 8 points, and a Respondent utilizes 30% of total subcontractors located in Wayne County; then the proposer will receive 2.4 points for this criteria).*

#### 4.10.5 **Evaluation Credits**

Provide a County Based Enterprise, Targeted Growth Community Enterprise, or other Wayne County Advantage program certificate (See Section 1.10) if applicable; otherwise, evaluation credits will not be considered.

### 4.11 **Optional Tools to Enhance the Evaluation Process**

Wayne County, during the evaluation of proposals may find it necessary to utilize one or multiple tools, as listed below, to facilitate their understanding of the proposal(s) in order to select the best offering to Wayne County.

#### 4.11.1 **Clarifications**

Wayne County may issue a clarification request, in writing, to one or all Proposers. A clarification request does not allow a Proposer to change its proposal. The clarification response may include additional information to address any ambiguities or deficiencies in the proposal.

#### 4.11.2 **Oral Presentation**

Wayne County may require an oral presentation of the Proposer's proposal. This presentation provides an opportunity for the Proposer to clarify its proposal.

#### 4.11.3 **Site Visit**

Wayne County may conduct a site visit to tour and inspect the Proposer's facilities.

#### 4.11.4 **Best and Final Offer (BAFO)**

Wayne County may request a Best and Final Offer (BAFO) from each Proposer determined to be in the competitive range.

### 4.12 **Negotiations**

After a prospective Contractor(s) has been selected, Wayne County and the prospective Supplier(s) will negotiate a Contract. If a satisfactory Contract cannot be negotiated within a reasonable amount of time, as determined by the County, Wayne County may, at its sole discretion, begin negotiations with the next qualified Proposer who submitted a proposal.



#### **4.13 Wayne County Option to Reject Proposals**

The County reserves the right to reject any or all proposals, or to accept or reject any proposal in part, and to waive any minor informality or irregularity in proposals received, if it is determined by the Procurement Director or designee that the best interest of the County will be served by doing so. The County may reject any proposal from any person, firm or corporation in arrears or in default to the County on any contract, debt, or other obligation, or if the Proposer is debarred by the County from consideration for a contract award, or if Proposer has committed a violation of the ethics or anti-kickback provisions of the County's Procurement Ordinance which resulted in a termination of a contract or other penalty within the two (2) years immediately preceding the date of issuance of this document.



## PART 2 – SUPPLIER SUBMITTAL REQUIREMENTS

### SECTION 5.0 – REQUIRED DOCUMENTATION AND FORMS

(Mandatory Minimum Requirements Checklist)

<input checked="" type="checkbox"/>	<b>DOCUMENTATION AND FORMS</b>
	<p>5.1 Demonstrate that the Proposer OR Proposer or its subcontractor OR Proposer or its key personnel meet the minimum qualifications outlined in Section 2.0, which may be accomplished by submitting the following:</p> <ul style="list-style-type: none"> <li>• Completed References Form</li> <li>• Completed Business Information Questionnaire portion of the Ethics in Contracting Form</li> <li>• Resumes for key personnel</li> <li>• Licenses/Certificates</li> </ul>
	5.2 Signed Proposal Form
	5.3 Pricing Sheet [Appendix A]
	5.4. Proposal Guarantee/Bid Bond
	<b>OTHER FORMS (Download*, complete and include with your proposal)</b>
	5.5 Response to Scope of Work Requirements Form
	5.6 Terms and Conditions Form
	First Tier Subcontractor Designation Form
	Ethics in Contracting Vendor Form
	W-9 Form
	Fair Employment Practices (FEP) Certificate. Complete the on-line application and print (PDF) a hard copy of your company's application and include with your proposal. Apply on-line at: <a href="https://www.waynecounty.com/departments/corpcounsel/certification-program.aspx">https://www.waynecounty.com/departments/corpcounsel/certification-program.aspx</a>
	Certificate of Insurance listing current coverages
	DBE Form
	Debarment Form
	<b>EVALUATION CRITERIA</b>
	Include any additional documentation that demonstrates how your company meets or exceeds the Evaluation Criteria outlined in Section 3.10.

\* Download Forms that are not included at:

<https://www.waynecounty.com/departments/mb/procurement/procurement-forms.aspx>



**5.1 REFERENCES THAT DEMONSTRATE MINIMUM QUALIFICATIONS**  
**(Outlined in Section 2.0)**

Complete the following information for a minimum of three (3) customer references for products/services of similar scope dating within the past 10 years.

Reference 1:

Entity Name:	Contact Name and Title:
City:	State:
Phone Number:	Email Address:
Years Serviced/Date of Project:	Annual Volume/Contract Amount:
Description of Project or Services:	

Reference 2:

Entity Name:	Contact Name and Title:
City:	State:
Phone Number:	Email Address:
Years Serviced/Date of Project:	Annual Volume/Contract Amount:
Description of Project or Services:	

Reference 3:

Entity Name:	Contact Name and Title:
City:	State:
Phone Number:	Email Address:
Years Serviced/Date of Project:	Annual Volume/Contract Amount:
Description of Project or Services:	



## 5.2 PROPOSAL FORM

### PROPOSAL FORM

**Failure to complete this form shall result in your Proposal being deemed non-responsive and rejected without further evaluation**

The Undersigned hereby offers and, if the contract is executed by the County Executive, agrees to furnish the goods and/or services in compliance with all terms, scope of work, conditions, specifications, and addenda in the Request for Proposals. The Undersigned further agrees to accept, via email or other electronic means, any and all notifications and contractual documents including, but not limited to, notifications, insurance verification requests, and purchase orders.

#### **ADDENDA:**

The undersigned has read, understands and is fully cognizant of the Information to Proposers, including the Form of Contract, all Exhibits thereto, together with any written addendum issued in connection with any of the above. The undersigned hereby acknowledges receipt of the following addendum(s): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ (write "none" if none). In addition, the undersigned has completely and appropriately filled out all required forms.

#### **OBLIGATION:**

The undersigned, by submission of this Offer, agrees to be obligated, if recommended for award of the contract and if the contract is executed by the County Executive, to provide the stated goods and/or services to the County for the term as stated in this RFP, and to enter into a contract with the County, in accordance with the conditions, scope and terms, as well as the Form of Contract, together with any written addenda as specified above.

#### **COMPLIANCE:**

The undersigned hereby accepts all administrative requirements of the RFP and will be in compliance with such requirements. By submitting this Proposal Form, the Proposer represents that: 1) the Proposer is in compliance with any applicable ethics or anti-kickback provisions of the County's Procurement Ordinance, and 2) if awarded a contract to operate the Concession or provide the Services required in the RFP, the Proposer will comply with the ethics and anti-kickback provisions of the Procurement Ordinance.

#### **NONCOLLUSION:**

The undersigned, by submission of this Proposal Form, hereby declares that this Proposal is made without collusion with any other business making any other Proposal, or which otherwise would make a Proposal.

#### **PERFORMANCE GUARANTEE:**

The undersigned further agrees that if awarded the Agreement, it will submit to the County any required performance guarantee (i.e. bid bond).

#### **SUBMITTAL REQUIREMENTS:**

The undersigned certifies it has attached a complete response to each of the submittal requirements listed in the Evaluation Criteria and Submittal Requirements section of this RFP.



No proposal shall be accepted which has not been signed in the appropriate space below.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

For clarification of this offer, contact:	
Company Name:	Name:
Address:	Title:
City:                      State:                      Zip:	Phone:
<b>*Signature of Authorized Person</b>	Fax:
Printed Name	Email:

\*Proposal Form **must** be signed by an authorized representative.



### 5.3 PRICING SHEET AND OTHER PRICING REQUIREMENTS

Complete APPENDIX A (Pricing Sheet), with the following considerations:

#### 5.3.1 *Tax Excluded from Price*

(a) Sales Tax: Wayne County and local units of government are exempt from sales tax for direct purchases. The Proposer's prices must not include sales tax.

(b) Federal Excise Tax: Wayne County may be exempt from Federal Excise Tax, or the taxes may be reimbursable, if articles purchased under any resulting Contract are used for Wayne County's exclusive use. Certificates showing exclusive use for the purposes of substantiating a tax-free, or tax-reimbursable sale will be sent upon request. If a sale is tax exempt or tax reimbursable under the Internal Revenue Code, the Proposer's prices must not include the Federal Excise Tax.

#### 5.3.2 *Special Incentives*

Wayne County is interested in any other special programs and alternative recommendations that Proposer's may have. Please discuss these programs, such as customer employee retail discounts, return policies, trade-in programs allowing the return of new product not needed, quantity discounts, green product offering, Michigan made products. For contracts designated to be extended to other schools, municipalities and counties it is expected that Wayne County will see an offer for administrative fees and rebates to assist in the operation of this consortium.

#### 5.3.3 *Price Stability Guarantee*

For the first twelve months of the Agreement, the Proposer must guarantee to provide the services at the proposed rates.

#### 5.3.4 *Proposal Pricing*

Proposal pricing must reflect Net 45 payment terms.

### 5.4 PROPOSAL GUARANTEE/BID BOND

A proposal guarantee, in the form of a bid bond in the amount of 5% of the total price of the proposal, must be submitted with the proposal. A proposal guarantee is as a guarantee that the proposer will enter into a contract for the work of the proposal is accepted.



## 5.5 RESPONSE TO SCOPE OF WORK REQUIREMENTS FORM

Review Section 3.0 (Scope of Work Requirements), as outlined in the corresponding sections below, and confirm your understanding:

Section 3.1 Contracted Scope of Services/Statement of Work

Section 3.2 Specifications

Section 3.3 Contract Term

Section 3.4 Additional Specifications:

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Section 3.4.1 Service Work Schedules

Section 3.4.2 Customer Service

Section 3.4.3 Roles & Responsibilities

Section 3.4.4 Delivery Acceptance Criteria

**Proposer Response to SOW Requirements:** Please confirm understanding of the requirements or state any exceptions. (Any exceptions to the requirements will be evaluated and determined whether they are in the best interest of the County.)





**5.6 TERMS AND CONDITIONS FORM**

Please reference the attached Agreement/Contract or Terms & Conditions Document.

**Confirmation of review of Terms & Conditions**

I have reviewed the terms and conditions.	YES	NO
I have thoroughly reviewed the “insurance requirements” section and can meet the requirements, if awarded the contract.	YES	NO
I accept <u>all</u> the terms and conditions outlined.	YES	NO

**Company Representative’s Name** \_\_\_\_\_

**Company Name** \_\_\_\_\_

Any exceptions to the Terms & Conditions and/or insurance requirements contained herein shall be noted in writing below, or attached as a redlined (MS Word) version of the document and included with the proposal submittal.

Page Number	
Outline Number or Paragraph	
Term, Condition or Specification	
Exception	
Signature (same signature as on Proposal Affidavit Signature and Acceptance form)	



**DEBARMENT FORM**  
Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies, to the best of its knowledge and belief, that it and its principals:

- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under federal nonprocurement programs by any federal department or agency;
- (2) Have not, within the three year period preceding the proposal, had one or more public transactions (federal, state, or local) terminated for cause or default; and
- (3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:
  - (a) For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local) or a procurement contract under such a public transaction;
  - (b) For the violation of federal or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or
  - (c) For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to five years, or both.

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Name and Title of Authorized Representative

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Name of Participant Agency or Firm

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Signature of Authorized Representative

Date

I am unable to certify to the above statement. Attached is my explanation.



**5.7 CONSTRUCTION BIDDER QUESTIONNAIRE**

Failure to complete the following form(s) may result in your Bid being deemed non-responsive and rejected without any further evaluation.

**PAST EXPERIENCE OF BIDDER:**

**Largest Gross Amount of Work Done in One Year**      \$ \_\_\_\_\_ Year \_\_\_\_\_

**Largest Single Contract Completed:**

Type and Location of Work:	Engineer/Architect or Owner:	Contract Price:	Date Completed:
Work performed as: <input type="checkbox"/> Prime Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Joint Venture		With:	

**List at least three projects of similar type to this contract that have been completed:**

Type and Location of Work:	Engineer/Architect or Owner:	Contract Price:	Date Completed:
Work performed as: <input type="checkbox"/> Prime Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Joint Venture		With:	
# of Change Orders Initiated by <input type="checkbox"/> Contractor <input type="checkbox"/> Engineer			

Type and Location of Work:	Engineer/Architect or Owner:	Contract Price:	Date Completed:
Work performed as: <input type="checkbox"/> Prime Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Joint Venture		With:	
# of Change Orders Initiated by <input type="checkbox"/> Contractor <input type="checkbox"/> Engineer			

Type and Location of Work:	Engineer/Architect or Owner:	Contract Price:	Date Completed:
Work performed as: <input type="checkbox"/> Prime Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Joint Venture		With:	



Venture				
# of Change Orders Initiated by <input type="checkbox"/> Contractor <input type="checkbox"/> Engineer				

Type and Location of Work:	Engineer/Architect or Owner:	Contract Price:	Date Completed:	
Work performed as: <input type="checkbox"/> Prime Contractor <input type="checkbox"/> Subcontractor <input type="checkbox"/> Joint Venture	With:			
# of Change Orders Initiated by <input type="checkbox"/> Contractor <input type="checkbox"/> Engineer				



**APPENDIX C.1  
PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS THAT \_\_\_\_\_

as principal and \_\_\_\_\_ as Surety, are held and firmly bound unto the COUNTY OF WAYNE, its Chief Executive Officer, Board of Commissioners, Offices, Department, Agents and Employees as their interests may appear, in the penal sum of \_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_), lawful money of the United States, for the payment of which sum of money well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by

SEALED with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT whereas the above bounden Principal has entered into a certain contract with the COUNTY OF WAYNE, Michigan, bearing the date the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, for

NOW, IF THE SAID Principal shall in all respects well and truly keep and perform the said contract on its part, in accordance with the terms thereof in the time and manner therein prescribed, and further shall defend, indemnify, keep and save harmless the County of Wayne, its Chief Executive Officer, Board of Commissioners, Offices, Departments, Agents and Employees as their interests may appear, against all liabilities, judgments, costs, damages and expenses which may in any wise come against said County of Wayne, its Chief Executive Officer, Board of Commissioners, Offices, Departments, Agents, Employees, or any of them, as their interests may appear, in consequence of the granting of such contract or which may in any wise result from the carelessness or neglect of said Principal of its Agents, Employees or Workmen in any respect whatever, or which may result on account of any infringement of any patent by reason of the materials, machinery, device or apparatus used, in the performance of said contract, and, moreover, shall pay to said County any sum or sums of money due said County by reason of any failure or neglect in the performance of the requirements of said contract, where the said County shall have elected to suspend the same, and shall pay all claims and damages whatsoever which may accrue to each and every person who shall be employed by said Principal or by its assignee or assignees, Contractors, Subcontractor or Subcontractors, in or about the performance of said contract, then is this obligation to be null and void, otherwise, to remain in full force and effect.

AND PROVIDED, that any alterations which may be made in the terms of the contract, or in the work to be done under it, or the giving by the County of any extension of time for the performance of the contract, or any other forbearance on the part of either the County or the Principal to the other shall not in any way release the Principal and the Surety or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alterations, extension of time or of forbearance being hereby waived.

WITNESSES:

\_\_\_\_\_ (Seal)  
\_\_\_\_\_  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_



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(Seal)



**APPENDIX C.2  
PAYMENT BOND**

KNOWN ALL MEN BY THESE PRESENTS, That \_\_\_\_\_  
as Principal and \_\_\_\_\_  
as Surety, are held and firmly bound unto the County of Wayne, its Chief Executive Officer, Board of Commissioners, Officers, Departments, Agents and Employees, in the penal sum of \_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ ) lawful money of the United States, for the payment of  
which sum of money well and truly to be made, we bind ourselves, our heirs, executors, administrators,  
successors and assigns, jointly and severally, firmly by these presents.

SEALED with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH That whereas the above bounden  
Principal has entered into a certain contract with the County of Wayne, Michigan, bearing date the \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_, for

NOW, IF THE SAID Principal shall pay, as the same may become duly payable, all indebtedness  
which may arise payable by said Contractor to a subcontractor or party performing labor or furnishing  
materials, or payable by any subcontractor to any person, firm or corporation on account of any labor  
performed, or materials furnished in the erection, repairing or ornamentation of such building,  
improvement, or works, in accordance with the provisions of Act No. 213 of the Public Acts of the State of  
Michigan, for the year 1963, as amended, then this obligation shall be void; otherwise to remain in full  
force and virtue.

AND PROVIDED, That any alterations which may be made in the terms of the contract, or in the  
work to be done under it, or the giving by the County of any extension of time for the performance of the  
contract, or any other forbearance on the part of either the County or the Principal to the other shall not in  
any way release the Principal and the Surety or either of them, their heirs, executors, administrators,  
successors or assigns from their liability hereunder, notice to the Surety of any such alterations, extension  
of time or of forbearance being hereby waived.

WITNESSES:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_ (Seal)