

# **PUBLIC IMPROVEMENT REQUEST FOR PROPOSAL**

**RFP# 23-11**

## **GEDDES AVENUE AND 2190 SOUTH STATE STREET RETAINING WALLS**

City of Ann Arbor  
ENGINEERING UNIT / PUBLIC SERVICES AREA



**Due Date: April 25, 2023, by 10:00 a.m. (local time)**

Issued By:

City of Ann Arbor  
Procurement Unit  
301 E. Huron Street  
Ann Arbor, MI 48104

# ADDENDUM No. 1

## RFP No. 23-11

### Geddes Avenue and 2190 South State Street Retaining Walls

**Due: April 25, 2023 at 10:00 AM (local time)**

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes forty-three (43) pages.**

**The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.**

**The following forms provided within the RFP Document should be included in submitted proposal:**

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

**Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.**

## I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

### **Section/Page(s)**

### **Change**

Page 13  
Section III.D

Replace with page Addendum 1-5. Corrected language in Paragraph 1 related to a statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan.

Pages 15-17  
Section III.E

Schedule of Pricing/Cost Forms; replace with pages Addendum 1-6 to 8. Changes are as follows:

Pages 15-17  
Section III.E (continued)

Replaced pay items 2047010 - \_Timber Wall, Rem with 2047011 - \_Timber Wall, Rem to reflect pay unit correction; 803100 – Steps, Conc with pay item 8037050 – Steps, Conc, Modified; and 8150547 - Betula nigra, tree form, 2 inch with 8150808 - Cercis canadensis, tree form, 2 inch.

Remove pay item 2020002 – Tree, Rem, 19 inch to 36 inch.

Revised estimated quantities for pay items 2020002 – Tree, Rem, 6 inch to 18 inch; 8167011 - \_Turf Establishment, Performance; 8087001 - \_Fence, Ornamental, Alternate 1; and 8087001 - \_Fence, Ornamental, Alternate 2.

Pages DS-9 to DS-10  
Detailed Specifications

Detailed Specification for Project Schedule and Payment; replace with pages Addendum 1-9 to 11. Revised sequence of work requirements and overall project completion date. Added calendar day completion and open to traffic requirements for each location.

Pages DS-25 to DS-26  
Detailed Specifications

Detailed Specification for Cast in Place Concrete Retaining Wall with Thin Stone Veneer; replace with pages Addendum 1-12 to 13. Revised Materials section and added color and technique requirements related to the grout/mortar for the thin natural stone veneer.

Pages DS-27 to DS-30  
Detailed Specifications

Detailed Specification for Modular Block Retaining Wall; replace with pages Addendum 1-14 to 17. Revised Materials section.

Detailed Specifications

Insert Detailed Specification for Steps, Conc, Modified pages Addendum 1-18.

Appendix  
MDOT Standard Plans/  
Special Details

Insert MDOT Standard Plans R-28-J – Curb Ramp and Detectable Warning Details and R-96-E – Soil Erosion & Sedimentation Control Measures pages Addendum-1-19 to 31.

Attachments

Attachment E – City of Ann Arbor Living Wage Ordinance Declaration of Compliance; replace with page Addendum-1-32. Updated the minimum hourly wage rates.

Attachments

Attachment F – City of Ann Arbor Living Wage Ordinance Poster; replace with page Addendum-1-33. Updated the minimum hourly wage rates.

Plans  
Sheets 1 to 10

Replace Plan Set in its entirety. Sheet revisions are noted below.

Sheet 1

Revised “Standard Plans” “Sheet Index” tables. Completed signature/seal block.

Sheet 4	Revised call outs on the “Wall Section View” detail. Revised “Wall Section View” and “Wall Reinforcement Section” details to show a flat wall cap. Revised “Sidewalk Construction Notes”.
Sheet 5	Revised “Removal Key” and “Construction Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading and temporary construction easement limits on the “Removal Plan View” and the “construction Plan View”. Added and revised call outs including quantities related to removal and construction work to reflect revisions to the “Removal Key” and “Construction Key”.
Sheet 6	Adjusted the grading and temporary construction easement limits and related call outs.
Sheet 7	Revised “Removal Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading limits. Added and revised call outs including quantities related to removal work to reflect revisions to the “Removal Key”. Added notation related to the landmark tree and business signing and lighting on site
Sheet 8	Revised “Construction Key” items and descriptions to be consistent with contract pay items being used as part of the project. Adjusted the grading limits. Added and revised call outs including quantities related to construction work to reflect revisions to the “Construction Key”. Added notation related to the landmark tree and business signing and lighting on site
Sheet 9	Adjusted the grading limits.

## II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in their review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: What type of railing is to be used for the concrete steps at the Geddes Avenue location?

Answer 1: Furnished materials and construction of the stair railings proposed for the project must be in accordance with the Michigan Department of Transportation 2020 Standard Specifications for Construction and match the color of the ornamental fencing proposed for the project.

Question 2: Is soil boring information available for the 2190 South State location?

Answer 2: No, soil boring information is not available for that location.

Question 3: Will the City of Ann Arbor consider approving an alternative modular block type for use on the gravity retaining wall at the 2190 South State Street location should there be one that is a standard stock item or another that is more readily available?

Answer 3: The City may approve use of an alternative block type for the gravity retaining wall providing it meets the design requirements and contract specifications for the project.

Question 4: Would the City of Ann Arbor consider revising the completion date for the project and moving it further out to allow more time to perform the work at each location since it requires completion in sequential order?

Answer 4: The City will consider this request and may also revise the currently specified requirement for the work to be performed sequentially at each location and instead allow it to occur simultaneously. Revisions, if any, to the project schedule and sequencing of work will be addressed as part of an addendum.

Proposers are responsible for any conclusions that they may draw from the information contained in the Addendum.

**E. Schedule of Pricing/Cost – 2190 S. State Street Retaining Wall**

Company: Z Contractors, Inc.

**Unit Price Bid**

<u>Item No.</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
1047051	_Certified Payroll Compliance and Reporting	LSUM	1.00	\$ 100.00	\$ 100.00
1047051	_General Conditions, Max \$30,000.00	LSUM	1.00	\$ 30,000.00	\$ 30,000.00
2020004	Tree, Rem, 6 inch to 18 inch	Ea	3.00	\$ 1,400.00	\$ 4,200.00
2047001	_Exploratory Excavation, Vertical	Ft	5.00	\$ 65.00	\$ 325.00
2047011	_Timber Wall, Rem	Sft	275.00	\$ 196.00	\$ 53,900.00
2047011	_Rockery Wall, Rem	Syd	2.00	\$ 800.00	\$ 1,600.00
2047011	_Rockery Wall, Rem and Salv	Syd	2.00	\$ 550.00	\$ 1,100.00
2057021	_Undercutting, Type IIB	Cyd	2.00	\$ 300.00	\$ 600.00
2087050	_Erosion Control, Inlet Filter	Ea	1.00	\$ 200.00	\$ 200.00
2090001	Project Cleanup	LSUM	1.00	\$ 2,500.00	\$ 2,500.00
7067010	_Retaining Wall, Modular Block	Sft	275.00	\$ 225.00	\$ 61,875.00
7067010	_Rockery Wall, Install Salv	Sft	16.00	\$ 200.00	\$ 3,200.00
8087001	_Fence, Protective, Modified	Ft	65.00	\$ 6.50	\$ 422.50
8120026	Pedestrian Type II Barricade, Temp	Ea	2.00	\$ 125.00	\$ 250.00
8120035	Channelizing Device, 42 inch, Fluorescent, Furn	Ea	85.00	\$ 20.00	\$ 1,700.00
8120036	Channelizing Device, 42 inch, Fluorescent, Oper	Ea	85.00	\$ 0.01	\$ 0.85
8120310	Sign Cover	Ea	10.00	\$ 35.00	\$ 350.00
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	170.00	\$ 6.00	\$ 1,020.00
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	170.00	\$ 0.01	\$ 1.70
8120370	Traf Regulator Control	LSUM	1.00	\$ 1.00	\$ 1.00
8127051	_Minor Traffic Control, Max \$15,000.00	LSUM	1.00	\$ 15,000.00	\$ 15,000.00
8167011	_Turf Establishment, Performance	Syd	40.00	\$ 35.00	\$ 1,400.00
<b>TOTAL BASE BID \$</b>					<b>179,746.05</b>

## CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and Z Contractors, Inc. ("Contractor")  
A Michigan Corporation, 50500 Design Lane, Shelby Township, MI 48315

Based upon the mutual promises below, the Contractor and the City agree as follows:

### ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **2190 S State Street Retaining Wall Replacement; RFP No. 23-11** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable)	General Conditions
Vendor Conflict of Interest Form	Standard Specifications
Prevailing Wage Declaration of Compliance Form (if applicable)	Detailed Specifications
Bid Forms	Plans
Contract and Exhibits	Addenda
Bonds	

### ARTICLE II - Definitions

**Administering Service Area/Unit** means **Public Services Area/Engineering Unit**

**Project** means **2190 S State Street Retaining Wall Replacement; RFP No. 23-11**

**Supervising Professional** means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: **Tracy Anderson, PE** whose job title is **Project Manager**. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

**Contractor's Representative** means **Blake Zapczynski** whose job title is **President**.

### ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.

- (B) The entire work for this Contract shall be completed by August 15, 2023.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to \$800 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

#### **ARTICLE IV - The Contract Sum**

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

One hundred seventy-nine thousand, seven hundred forty-six and 05/100 Dollars (\$179,746.05)

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.

#### **ARTICLE V - Assignment**

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

#### **ARTICLE VI - Choice of Law**

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this Contract, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.



## **ARTICLE VII - Relationship of the Parties**

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this Contract.

## **ARTICLE VIII - Notice**

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

## **ARTICLE IX - Indemnification**

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

## **ARTICLE X - Entire Agreement**

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

**ARTICLE XI – Electronic Transactions**

The City and Contractor agree that signatures on this Contract may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Contract. This Contract may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

**FOR CONTRACTOR**

By \_\_\_\_\_

Its: \_\_\_\_\_

**FOR THE CITY OF ANN ARBOR**

By \_\_\_\_\_  
Christopher Taylor, Mayor

By \_\_\_\_\_  
Jacqueline Beaudry, City Clerk

**Approved as to substance**

By \_\_\_\_\_  
City Administrator

By \_\_\_\_\_  
Services Area Administrator

**Approved as to form and content**

\_\_\_\_\_  
Atleen Kaur, City Attorney

**PERFORMANCE BOND**

- (1) \_\_\_\_\_ (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$\_\_\_\_\_, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled \_\_\_\_\_, for RFP No. \_\_\_\_\_ and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
  - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 202\_.

\_\_\_\_\_  
(Name of Surety Company)  
By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Approved as to form:

\_\_\_\_\_  
Atleen Kaur, City Attorney

\_\_\_\_\_  
(Name of Principal)  
By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Name and address of agent:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**LABOR AND MATERIAL BOND**

- (1) \_\_\_\_\_ of \_\_\_\_\_ (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ \_\_\_\_\_, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled \_\_\_\_\_, \_\_\_\_\_, for RFP No. \_\_\_\_\_; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 202\_

\_\_\_\_\_  
(Name of Surety Company)  
By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Approved as to form:

\_\_\_\_\_  
Atleen Kaur, City Attorney

\_\_\_\_\_  
(Name of Principal)  
By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Name and address of agent:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **GENERAL CONDITIONS**

### **Section 1 - Execution, Correlation and Intent of Documents**

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment, and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Special Provisions; (4) Supplemental Specifications; (5) Standard Specifications; (6) Plans; (7) General Conditions; (8) Contract; (9) Bid Forms; (10) Bond Forms; (11) Bid.

### **Section 2 - Order of Completion**

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

### **Section 3 - Familiarity with Work**

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

### **Section 4 - Wage Requirements**

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of

subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

## **Section 5 - Non-Discrimination**

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

## **Section 6 - Materials, Appliances, Employees**

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

## **Section 7 - Qualifications for Employment**

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

## **Section 8 - Royalties and Patents**

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

## **Section 9 - Permits and Regulations**

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

## **Section 10 - Protection of the Public and of Work and Property**

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or

employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

## **Section 11 - Inspection of Work**

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

## **Section 12 - Superintendence**

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

## **Section 13 - Changes in the Work**

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be



executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

## **Section 14 - Extension of Time**

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

## Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

## **Section 16 - Progress Payments**

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

## **Section 17 - Deductions for Uncorrected Work**

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

## **Section 18 - Correction of Work Before Final Payment**

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material

at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

## **Section 19 - Acceptance and Final Payment**

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

## **Section 20 - Suspension of Work**

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the

written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

## **Section 21 - Delays and the City's Right to Terminate Contract**

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

## **Section 22 - Contractor's Right to Terminate Contract**

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

## **Section 23 - City's Right To Do Work**

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

## **Section 24 - Removal of Equipment and Supplies**

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

## **Section 25 - Responsibility for Work and Warranties**

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

## **Section 26 - Partial Completion and Acceptance**

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

## **Section 27 - Payments Withheld Prior to Final Acceptance of Work**

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

## **Section 28 - Contractor's Insurance**

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of

policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

- Bodily Injury by Accident - \$500,000 each accident
  - Bodily Injury by Disease - \$500,000 each employee
  - Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

- \$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
  - \$2,000,000 Per Project General Aggregate
  - \$1,000,000 Personal and Advertising Injury
  - \$2,000,000 Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute



with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

## **Section 29 - Surety Bonds**

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

## **Section 30 - Damage Claims**

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

## **Section 31 - Refusal to Obey Instructions**

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

## **Section 32 - Assignment**

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

## **Section 33 - Rights of Various Interests**

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

## **Section 34 - Subcontracts**

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

## **Section 35 - Supervising Professional's Status**

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

### **Section 36 - Supervising Professional's Decisions**

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

### **Section 37 - Storing Materials and Supplies**

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

### **Section 38 - Lands for Work**

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

### **Section 39 - Cleaning Up**

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

### **Section 40 - Salvage**

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

### **Section 41 - Night, Saturday or Sunday Work**

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

## **Section 42 - Sales Taxes**

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

## Section 43

### CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period \_\_\_\_\_, 20\_\_\_\_, to \_\_\_\_\_, 20\_\_\_\_, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled \_\_\_\_\_, for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Date

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Past due invoices, if any, are listed below.

## Section 44

### CONTRACTOR'S AFFIDAVIT

The undersigned Contractor, \_\_\_\_\_, represents that on \_\_\_\_\_, 20\_\_\_\_, it was awarded a contract by the City of Ann Arbor, Michigan to \_\_\_\_\_ under the terms and conditions of a Contract titled \_\_\_\_\_. The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the City of Ann Arbor.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the City of Ann Arbor.

This affidavit is freely and voluntarily given with full knowledge of the facts.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Date

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Subscribed and sworn to before me, on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_  
\_\_\_\_\_, \_\_\_\_\_ County, Michigan

\_\_\_\_\_  
Notary Public

\_\_\_\_\_ County, MI

My commission expires on:

## **STANDARD SPECIFICATIONS**

All work under this contract shall be performed in accordance with the Michigan Department of Transportation 2020 Standard Specifications for Construction in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<https://www.michigan.gov/mdot/-/media/Project/Websites/MDOT/Business/Construction/Standard-Specifications-Construction/2020-Standard-Spec-Construction-with-Errata-Incorporated-Info-Only.pdf>

## DETAILED SPECIFICATIONS



CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**CERTIFIED PAYROLL COMPLIANCE AND REPORTING**

SDA:DAD

1 of 2

02/22/23

**a. Description.** This specification covers all administrative requirements, payroll reporting procedures to be followed by Contractors performing work on City-sponsored public improvements projects, and all other miscellaneous and incidental costs associated with complying with the applicable sections of the City of Ann Arbor Code of Ordinances with regard to payment of prevailing wages and its Prevailing Wage Compliance policy.

The intent of this specification is **not** to include the actual labor costs associated with the payment of prevailing wages as required. Properly incorporate those costs in all other contract items of work bid for the project.

**b. General.** The Contractor will comply with all applicable sections of Federal and State prevailing wage laws, duly promulgated regulations, the City of Ann Arbor Code of Ordinances, and its Prevailing Wage Compliance Policy as defined within the contract documents. The Contractor shall provide the required certified payrolls, city-required declarations, and reports requested elsewhere in the contract documents within the timeline(s) stipulated therein.

The Contractor shall also provide corrected copies of any submitted documents found to contain errors, omissions, inconsistencies, or other defects that render the report invalid. Provide the corrected copies when requested by the Supervising Professional.

The Contractor shall also attend any required meetings as needed to fully discuss and ensure compliance with the contract requirements regarding prevailing wage compliance. The Contractor shall require all employees engaged in on-site work to participate in, provide the requested information to the extent practicable, and cooperate in the interview process. The City of Ann Arbor will provide the needed language interpreters in order to perform wage rate interviews or other field investigations as needed.

Submit certified payrolls on City-provided forms or forms used by the Contractor, as long as the Contractor forms contain all required payroll information. If the Contractor elects to provide its own forms, the Supervising Professional shall approve of their use prior to the beginning of on-site work.

**c. Unbalanced Bidding.** The City of Ann Arbor will examine the submitted cost for this item of work prior to contract award. If the City determines, in its sole discretion that the costs bid by the Contractor for complying with the contract requirements are not reasonable, accurately reported or contain discrepancies, the City reserves the right to request additional documentation that fully supports and justifies the price as bid. Should the submitted information not be determined to be reasonable or justify the costs, the City reserves the right to pursue award of the contract to the second low bidder without penalty or prejudice to any other remedies that it may have or may elect to exercise with respect to the original low-bidder.

The City will not extend the contract completion date as a result of its investigation of the as-bid amount for this item of work, even if the anticipated contract award date must be adjusted. The only exception will be if the Contractor adequately demonstrates that their costs were appropriate and justifiable. In such case, the City will adjust the contract completion date by the number of

calendar days commensurate with the length of its investigation if it cannot meet the published Notice to Proceed date of the work. The City will not allow adjustments to contract unit prices for all other items of work due to the adjustment of contract completion date.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Certified Payroll Compliance and Reporting .....	Lump Sum

Measure **Certified Payroll Compliance and Reporting** by the unit lump sum and pay for it at the contract unit price, which price includes costs for all supervisory, accounting, and administrative labor, and equipment and materials necessary to complete the work of monitoring, performing and maintaining compliance with the tasks required of this Detailed Specification.

Measurement will be on a pro rata basis at the time of each progress payment, and based on the ratio of work completed during the payment period and the total contract amount. When all of the work of this Contract is complete, the measurement of this item shall be 1.0 Lump Sum, less any deductions incurred for inadequate performance as described herein. This amount will not increase for any reason, including extensions of time, extras, and/or additional work.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**WORKING IN THE RAIN OR IN THE DARK**

SDA:DAD

1 of 1

02/22/23

**a. Description.**

Working in the Rain

The Engineer may delay or stop the work due to threatening weather conditions. The Contractor will not work in the rain unless authorized in writing by the Engineer.

The Contractor is solely responsible for repairing all damages to the work and to the site, including any City infrastructure, and any adjacent properties resulting from its decision to work in the rain.

Working in the Dark

The Contractor will not work in the dark except as approved by the Engineer and will provide lighting for night work as detailed elsewhere in this contract.

The Engineer may stop the work or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the Contractor cannot be complete the work within the remaining daylight hours, or if inadequate daylight is present to properly perform or inspect the work.

The Contractor is solely responsible for repairing all damages to the work and to the site, including any City infrastructure, and any adjacent properties, which result from working in the dark.

**b. Measurement and Payment.**

No compensation shall be due the Contractor for unused materials or downtime due to rain, or the threat of rain.

No compensation shall be due to the Contractor for unused materials or downtime when the Engineer directs work stoppage for reasons due to darkness and/or inadequate remaining daylight.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**GENERAL CONDITIONS**

SDA:JAB/DAD

1 of 2

02/22/23

**a. Description.** This item comprises all work described and required by the plans and specifications at each project location for which the contract contains no item(s) of work, including but not limited to the following:

- Scheduling, coordination, and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking.
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities.
- Protection and maintenance of utilities.
- Maintaining drainage.
- Furnishing, placement, and grading of maintenance gravel to construct any temporary driveways, sidewalks and/or sidewalk ramps necessary for construction of the proposed work.
- Maintaining driveways drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups. This includes the placement and maintenance of gravel in driveway openings as directed by the Engineer.
- Storing all materials and equipment off lawn areas.
- Temporary relocation and final replacement/re-setting of mailboxes.
- Coordination efforts to furnish various HMA mixtures as directed by the Engineer.
- Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer.
- Furnishing and operating vacuum-type street cleaning equipment a minimum of once per week or more frequently as directed by the Engineer.
- Protecting all sewers, and drainage and utility structures including manholes, gate wells, valve boxes, inlet structures, roadside ditches, and culverts from damage and contamination by debris and construction materials. Keeping structures and culverts clean of construction debris and properly covered/protected at all times during the construction. Immediately cleaning any structures, sewers, culverts and/or roadside ditches contaminated with construction debris resulting from Contractor operations and/or work activities.
- Disposing of excavated materials and debris - The Contractor shall dispose of, at the Contractor's expense, all excavated material. The Engineer will not pay for any costs associated with this work separately.
- Furnishing and operating vacuum-type utility structure cleaning equipment.
- Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors.
- Furnishing and operating a backhoe during all work activities.

- Furnishing and operating a jackhammer and air compressor during all work activities.
- Noise and dust control.
- Mobilization(s) and demobilization(s).
- Furnishing submittals and certifications for materials and supplies.
- All miscellaneous and incidental items such as overhead, insurance, and permit fees.
- Meeting all requirements relating to Debarment Certification, Davis Bacon Act, and Disadvantaged Business Enterprise, and providing the necessary documentation.

The Appendix of the contract documents provides data pertaining to existing soil borings to assist the Engineer and Contractor with determining the soil conditions within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any/all conclusions it may draw from the data.

Quantities as given are approximate and are estimates for bidding purposes. The City does not guarantee their totals and they may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities; however, the City will not allow the Contractor to adjust unit price(s) due to such change.**

**b. Materials.** Maintenance gravel in driveway openings can be substituted with HMA millings compacted and free of any items that could cause damage to vehicles.

**c. Construction.** Not specified.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
General Conditions, Max \$____ .....	Lump Sum

Measure **General Conditions, Max \$\_\_\_\_** by the unit lump sum and pay for it at the contract unit price, which price includes costs for all labor, equipment, and materials necessary to complete the work.

The Contractor is fully responsible for all direct and/or indirect damages to property caused by unclean or damaged sewers or structures resulting from its operations and/or work activities including any/all cost associated with such damages.

Measurement will be on a pro rata basis at the time of each progress payment and based on the ratio of work completed during the payment period and the total contract amount. When all the work of this Contract is complete, the measurement of this item shall be 1.0 Lump Sum, less any deductions incurred for inadequate performance as described herein. This amount will not increase for any reason, including extensions of time, extras, and/or additional work.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**MATERIAL AND SUPPLY SUBMITTALS AND CERTIFICATIONS**

SDA:DAD

1 of 1

02/22/23

**a. Description.** This work includes submittal to the Engineer by the Contractor and its Subcontractors and prior to commencement of work; Michigan Department of Transportation (MDOT) Form 0501 showing all materials and supplies proposed for use on the project, and any product data information requested by the Engineer. MDOT Form 0501 can be found at <https://mdotjboss.state.mi.us/webforms/GetDocument.htm?fileName=0501.pdf>. This work also includes furnishing certifications to the Engineer for review and approval a minimum of three (3) business days prior to any scheduled delivery, installation, and/or construction of the same. The manufacturer or supplier shall certify the following materials and supplies are compliant with the contract specifications unless otherwise directed by the Engineer:

Cement and Lime	Bridge Coating Systems
Aggregates	Erosion and Sedimentation Control Materials
Admixtures and Curing Materials for Concrete	Turf and Landscaping Materials
Asphaltic Materials	Electrical and Lighting Materials
Steel Reinforcement	Permanent Traffic Sign and Support Materials
Structural Steel	Permanent Paving Marking Materials
Fencing Materials	Permanent Traffic Signal Materials
Miscellaneous Metal Products	Temporary Traffic Control Materials
Drainage Products	Sanitary Sewer Materials
Geosynthetics	Water Main Materials
Water	Concrete Mixtures
Timber and Lumber	
Masonry Units	
Joint and Waterproofing Materials	

**b. Materials.** None specified.

**c. Construction.** None specified.

**d. Measurement and Payment.** The Engineer will not pay for the work required of this detailed specification separately. The Contractor will include it in the contract unit price bid for the pay Item **General Conditions, Maximum, \$\_\_\_\_\_**.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**VACUUM TYPE CLEANING EQUIPMENT**

SDA:DAD

1 of 1

02/22/23

**a. Description.** This work includes furnishing and operating throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as and when directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to paving, and for street and utility structure cleaning after all paving.

**b. Materials.** None specified.

**c. Construction.** The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer. When directed by the Engineer, the Contractor shall use this equipment to control dust, dirt, and other debris within the project limits and beyond as required, to clean streets surfaces immediately prior to placing HMA pavement mixtures, and for street and utility structure cleaning after all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.

**d. Measurement and Payment.** The Engineer will not pay for the work required of this detailed specification separately. The Contractor will include it in the contract unit price bid for the pay Item **General Conditions, Maximum, \$\_\_\_\_\_**.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**PROJECT SCHEDULE AND PAYMENT**

SDA:DAD

1 of 3

04/21/23

**a. Description.**

**Examination of Plans, Specifications, and Work Site:** Proposer shall carefully examine the Bid Form, plans, specifications, and the work site until it is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Complete the entirety of work under this Contract in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. The City expects to furnish the Contractor with two (2) copies of the Contract, for its execution, on or before **May 19, 2023**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance documentation, to the City within **fifteen (15) working days**. City Council approval to award this contract is expected on **June 20, 2023**.

2. By no later than the **Pre-Construction Meeting** the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. Work shall not start until a schedule is approved in writing by the Engineer. The Contractor shall update the approved work schedule at the request of the Engineer and present it to the Engineer within seven (7) calendar days of said request. It shall also be prepared to present an up-to-date approved work schedule at all progress meetings scheduled for the project.

3. The Contractor shall begin the work of this project on or before **July 24, 2023**, and only upon approval from the Project Engineer, and in no case without an approved detailed schedule of work, receipt of the fully executed Contract, and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.

4. Conduct the work as shown on the plans and as specified in the contract. Perform and complete all work at the Geddes Avenue project location with exception to landscape plantings and turf restoration before mobilizing and working to complete the 2190 S. State Street location. With approval, the Engineer may allow the Contractor's operations to include work at both project locations simultaneously using separate crews if, in its opinion, this appears reasonable to allow for proper and thorough inspection, and the Contractor's work progresses without delay at each location. If approved, should the Contractor fail to meet the above expectations, the Engineer will direct that simultaneous work be discontinued. Should this occur, the Contractor will complete work at the location the has progressed furthest and the remobilize to complete the other.



5. Complete work and open to traffic the 2190 South State Street location within 22 calendar days of commencing work. Complete work on the entire project on or before the final completion date of **August 15, 2023**. Project completion includes but is not limited to the following: existing concrete sidewalk, ramp, and stair removals; rockery wall removals and salvaging, timber wall removal; cast-in-place and modular block retaining wall construction; stairway construction; rockery wall reinstallation; sidewalk and curb ramp construction; decorative fence installation; landscape plantings; restoration of all disturbed areas; and removal of all temporary traffic control devices.

6. The City of Ann Arbor will impose the following workday, hour and other work restrictions.

Contractor operations shall be limited by local municipality work time, noise, and dust ordinance:

- Monday through Friday: 7:00 a.m. – 8:00 p.m.
- Saturday: 7:00 a.m. – 8:00 p.m. with notice given to City of Ann Arbor no less than 48 hours and no more than five (5) days.
- Sunday: only with written approval from the City of Ann Arbor.

No work shall be performed during holiday periods as follows, unless approved by the City of Ann Arbor:

- Independence Day: from 3:00 p.m., Monday, July 3 through 7:00 a.m., Wednesday, July 5
- Ann Arbor Art Fair: from 3:00 p.m., Wednesday, July 19 through 7:00 a.m., Monday July 24

Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the intermediate (location specific) and final completion dates. Should the Contractor demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$800.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the contract completion times/dates required by this Detailed Specification.

Assessment of Liquidated Damages will occur until the required work is complete in the current construction season. If, with the Engineer's approval, work extends beyond seasonal limitations, the assessment of Liquidated Damages will discontinue until the work resumes in the following construction season.

**b. Measurement and Payment.**

If the construction contract is not complete by the specified completion date including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor it may terminate the Contract. Should this occur, no additional compensation will be due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, payment for contract items with a Lump Sum unit price will be up to a maximum amount equal to the percentage of the contract work that is complete at the time of termination.

No additional compensation will be paid to the Contractor to remobilize at a project location.

Include any/all Contractor costs associated with efforts to organize, coordinate, and schedule the project work in the contract unit price bid for the pay item **General Conditions, Max \$\_\_\_**.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**MAXIMUM UNIT WEIGHT**

SDA:DAD

1 of 1

02/22/23

Determination of the maximum dry density in pounds per cubic foot ( $\text{lbs/ft}^3$ ) will be using test method AASHTO T-180 unless otherwise directed by the Engineer. Use the determined value(s) as the maximum unit weight when measuring the in place compaction or density of soils unless such value(s) are determined by an alternate test method as directed by the Engineer.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**VERTICAL EXPLORATORY EXCAVATION**

SDA:DAD

1 of 2

02/22/23

**a. Description.** The use of this detailed specification is to compensate the Contractor to locate underground infrastructure, such as culverts, sewers, utilities, and/or to expose the existing pavement section. Use will only be as directed and approved by the Engineer. This detailed specification is not to compensate the Contractor for the responsibilities in subsection 107.12 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction.

This work consists of conducting a vertical exploratory investigation to expose an existing culvert, sewer, utility/utility service, or the existing pavement section in order to verify the location, condition, size, material, alignment and/or composition; allowing the Engineer to document the necessary information; and backfilling the excavation. It includes providing necessary lane, shoulder and/or sidewalk closures required to perform the work.

The intent of "Exploratory Excavation" is not to provide a means for the Contractor to locate each existing utility throughout the project, but for those that appear to be in conflict with the proposed work and their location is unclear or unknown. The Contractor is responsible for "using reasonable care to establish the precise location of the underground facilities in advance of construction" (Public Act 174 of 2013 - Miss Dig Law) as a part of the overall project contract.

**b. Materials.** Use Granular Material Class III in accordance with section 902 of the MDOT 2020 Standard Specifications for Construction for backfill. Use material removed during exploratory investigation for backfill only if approved by the Engineer.

**c. Construction.** The owner of any sewer or utility to be exposed will not take the facilities out of service during the exploratory investigation. Contact utility owners in accordance with subsection 107.12 of the MDOT 2020 Standard Specifications for Construction.

Establish necessary lane, shoulder and/or sidewalk closures required to perform work.

Advance the exploratory excavation using vacuum excavation, hand digging, conventional machine excavation, or a combination thereof subject to approval of the Engineer. Allow the Engineer access to document the necessary information. If the technique used to advance the excavation causes any damage to the existing facilities, immediately contact the utility owner and cease all work until Engineer approves of an alternate method.

Take care to protect the exposed culvert, sewer or utility from damage during construction. Repair or replace culvert, sewer or utility, damaged during exploratory excavation, with like materials or alternative and as approved by the Engineer.

Obtain the Engineer's approval before backfilling the excavation. Complete backfilling no later than 24 hours after approval. Backfill in accordance with subsection 204.03.C of the MDOT 2020 Standard Specifications for Construction. Dispose of excess material in accordance with subsection 205.03.P of the MDOT 2020 Standard Specifications for Construction.

The Contractor is responsible for all costs associated with the repair work and out of service time of all broken or damaged existing culverts, sewers or utilities resulting from any action by the

Contractor. If the exploratory investigation results in damage to utilities, contact the owner of such utility to coordinate the repair.

**d. Measurement and Payment.** Measured and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Exploratory Excavation, Vertical.....	Foot

Measure **Exploratory Investigation, Vertical** by the foot from top of existing grade vertically to the bottom of the excavation for a 4-foot maximum diameter hole, or as approved by the Engineer. Measure and pay for the excavated depth of each 4-foot maximum diameter hole separately. One paid excavation may include multiple utility verifications if the utilities are close in proximity.

**Exploratory Investigation, Vertical** includes all cost for labor, equipment and materials necessary to complete the work, including all costs associated with repair or replacement resulting from the Contractor's activities.

CITY OF ANN ARBOR  
 DETAILED SPECIFICATION  
 FOR  
**RETAINING WALL REMOVAL/SALVAGE**

SDA:DAD

1 of 1

04/04/23

**a. Description.** This work includes the removal of existing timber retaining walls and portions of existing rockery retaining walls, and the removal and salvage of portions of existing rockery walls all to construct new retaining walls. Perform this work in accordance with section 204 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as modified herein.

**b. Materials.** Provide materials in accordance with those specified in subsection 240.02 of the MDOT Standard Specifications for Construction.

**c. Construction.** Use construction methods as described in subsection 204.03.E of the MDOT Standard Specifications for Construction, and as directed by the Engineer.

During removal operations take care not to damage existing rockery wall materials that are to be salvaged, and store and protect these materials in a secure location for later reinstallation.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, to protect the grade and/or adjacent areas. The Contractor will not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit prices using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Rockery Wall, Rem.....	Square Yard
Rockery Wall, Rem and Salv .....	Square Yard
Timber Wall, Rem .....	Square Yard

Measure **Rockery Wall, Rem, Rockery Wall, Rem and Salv, and Timber Wall, Rem** areas respectively in place by the unit square yard and pay for them at their respective contract unit prices, which prices include the costs for all labor, equipment, and materials necessary to complete the work.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**UNDERCUTTING**

SDA:JAB/DAD

1 of 2

02/22/23

**a. Description.** This work includes the removal of existing unstable and/or unsuitable base, subbase and/or subgrade soil material(s) that may be susceptible to frost heaving or differential frost action in the areas and limits identified by the Engineer. It also includes installing stabilization geotextile and/or structural geogrid as necessary and backfilling to replace these material(s) and remedy the unstable soil conditions. Perform this work in accordance with section 205 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as modified herein.

**b. Materials.** Provide Granular Material Class II and 21AA dense-graded aggregate materials in accordance with those specified in section 902 of the MDOT Standard Specifications for Construction. Only crushed limestone material is permissible for 21AA dense-graded aggregate unless otherwise approved by the Engineer.

Provide Coarse Aggregate 3x1 in accordance with sections 902 and 916 the MDOT Standard Specifications for Construction, except as modified herein. Coarse crushed aggregate must consist of a well graded crushed natural aggregate ranging from one (1) inch to three (3) inch inches in size with no more than 7 percent by weight passing the No. 200 sieve. Coarse aggregate crushed content must be at least 95%.

Provide stabilization geotextile materials in accordance with section 910 of the MDOT Standard Specifications for Construction.

Provide structural geogrid materials in accordance with the Detailed Specification for Structural Geogrid.

**c. Construction.** Use construction methods as described in subsection 205.03.E of the MDOT Standard Specifications for Construction, and as directed by the Engineer.

After either removing the pavement, performing rough/finish grading, and/or at the time of proof rolling, the Engineer will inspect the grade to determine the need for, and the limits of, undercuts. Excavate to the required depth, trim, shape, and re-compact the undercut areas as directed by the Engineer. Properly dispose of all excess materials.

Backfill areas of Undercutting, Type IIA with class 21AA dense-graded aggregate, areas of Undercutting, Type IIB with Granular Material Class II, and areas Undercutting, Type IIC with Coarse Aggregate 3x1 unless directed otherwise by the Engineer.

Place stabilization geotextile and structural geogrid as directed by the Engineer in areas where subgrade soils require added stability. Place stabilization geotextile as directed by the Engineer in areas where is the potential of intermixing of dissimilar materials.

Place and compact the aggregate fill in maximum lifts of not more than 12 inches thick. At the discretion of the Engineer, aggregate fill lifts of up to 24 inches may be allowed based on the assessment of subgrade soil conditions.

Compact undercutting backfill material (>12 inches below the finish base grade) to not less than 95% of its maximum unit weight. Compact undercutting backfill material ( $\leq$ 12 inches below the finish base grade) to not less than 98% of its maximum unit weight. Determine the maximum unit weight of backfill materials using the AASHTO T-180 test.

The Engineer may elect to use one or more types of undercutting to address poor soil conditions identified in a specific area of the project.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, to protect the grade and/or adjacent areas. The Contractor will not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit prices using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Undercutting, Type IIA.....	Cubic Yard
Undercutting, Type IIB.....	Cubic Yard
Undercutting, Type IIC.....	Cubic Yard

Measure **Subgrade Undercutting, Type IIA**, **Subgrade Undercutting, Type IIB**, and **Subgrade Undercutting, Type IIC** volumes respectively in place by the unit cubic yard and pay for them at their respective contract unit prices, which prices include the costs for all labor, equipment, and materials necessary to complete the work.

When one or more types of undercutting are used to address poor soil conditions identified in a specific area of the project, each type will be measured and paid for separately.

Stabilization geotextile and structural geogrid will each be measured and paid for separately.



CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**EROSION CONTROL, INLET FILTER**

SDA:JAB/DAD

1 of 1

02/22/23

**a. Description.** This work consists of installing and maintaining inlet filters in accordance with section 208 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as shown on the Plans. Install filters in existing and proposed inlets to restrict and minimize the amount of sediment entering the storm sewer system and water courses.

**b. Materials.** The following devices are approved for use as acceptable alternatives:

1. Siltsack® Type B, Regular Flow, by ACF Environmental, Inc.
2. Inlet Pro® Sediment Bag, Standard Flow, with optional foam deflector by Hanes GeoComponents.
3. Dandy Curb Bag®, Dandy Bag®, Dandy Curb Sack®, Dandy Sack®, or Dandy Pop® by Dandy Products, Inc.
4. Geoturf™ Basin Bag™, Regular Flow by CSI Geoturf.

The Contractor shall submit product data sheets and a sample of the filter material used for inlet filters to the Engineer for approval prior to ordering materials.

**c. Construction.** The Contractor shall install, maintain, clean, and re-install and/or replace inlet filters in accordance with the manufacturer's specifications and as directed by the Engineer. The Contractor shall dispose of debris off-site, in accordance with subsection 205.03.P of the MDOT Standard Specifications for Construction.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit prices using the following pay items:

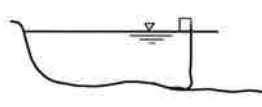



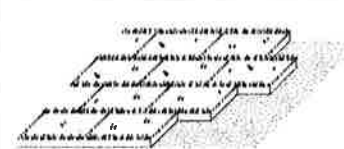
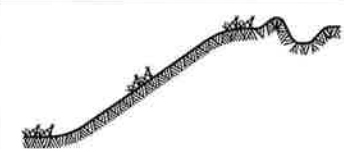
<b>Pay Item</b>	<b>Pay Unit</b>
Erosion Control, Inlet Filter.....	Each


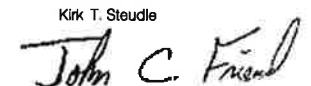

Measure **Erosion Control, Inlet Filter** individually in place by unit each and pay for it at the contract unit price, which price includes all costs for labor, equipment, and materials necessary to furnish, install, maintain, clean and remove the inlet filter, and to re-install and/or replace the inlet filter as needed.


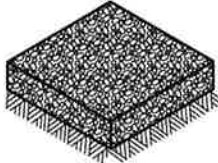


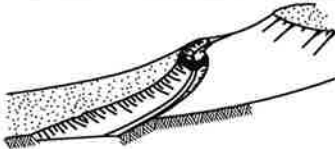



# APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

( COMPREHENSIVE DETAILS ARE LOCATED IN SECTION 6 OF  
THE SOIL EROSION & SEDIMENTATION CONTROL MANUAL )

- A = SLOPES
- B = STREAMS AND WATERWAYS
- C = SURFACE DRAINAGEWAYS
- D = ENCLOSED DRAINAGE (INLET & OUTFALL CONTROL)
- E = LARGE FLAT SURFACE AREAS
- F = BORROW AND STOCKPILE AREAS
- G = DNRE PERMIT MAY BE REQUIRED

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	 <b>TURBIDITY CURTAIN</b>	A Turbidity Curtain is used when slack water area is necessary to isolate construction activities from the watercourse. The still water area contains the sediments within the construction limits.		•					
2	 <b>GRUBBING OMITTED</b>	Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gulying. Discourages off-road vehicle use.		•			•		
3	 <b>PERMANENT/TEMPORARY SEEDING</b>	Inexpensive but effective erosion control measure to stabilize flat areas and mild slopes. Permits runoff to infiltrate soil, reducing runoff volumes. Proper preparation of the seed bed, fertilizing, mulching and watering is critical to its success.		•	•		•	•	
4	 <b>DUST CONTROL</b>	Dust control can be accomplished by watering, and/or applying calcium chloride. The disturbed areas should be kept to a minimum. PERMANENT/TEMPORARY SEEDING (KEY 3) should be applied as soon as possible.		•			•	•	
5	 <b>SODDING</b>	Provides immediate vegetative cover such as at spillways and ditch bottoms. Proper preparation of the topsoil, placement of the sod, and watering is critical to its success.		•			•	•	
6	 <b>VEGETATED BUFFER STRIPS</b>	Reduces sheet flow velocities preventing rilling and gulying. Assists in the collection of sediments by filtering runoff. Assists in the establishment of a permanent vegetative cover.		•			•		

 Michigan Department of Transportation	DEPARTMENT DIRECTOR Kirk T. Stuedle  APPROVED BY: _____ ENGINEER OF DELIVERY	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR <b>SOIL EROSION &amp; SEDIMENTATION CONTROL MEASURES</b>			
PREPARED BY DESIGN DIVISION DRAWN BY: <u>B.L.T.</u> CHECKED BY: <u>W.K.P.</u>	 APPROVED BY: _____ ENGINEER OF DEVELOPMENT	9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	<b>R-96-E</b>	SHEET 1 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
7	 <p>RIPRAP</p>	Used where vegetation cannot be established. Very effective in protecting against high velocity flows. Should be placed over a geotextile liner.		•	•	•	•		•
8	 <p>AGGREGATE COVER</p>	Can be used in any area where a stable condition is needed for construction operations, equipment storage or in heavy traffic areas. Reduces potential soil erosion and fugitive dust by stabilizing raw areas.		•				•	•
9	 <p>BENCHES</p>	Reduces sheet flow velocities preventing rilling and gulying. Assists in the collection and filtering of sediments. Provides access for stabilizing slopes.		•					•
10	 <p>DIVERSION DIKE</p>	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gulying. Collects and diverts runoff to properly stabilized drainage ways. Works well with INTERCEPTING DITCH (KEY 11)		•				•	•
11	 <p>INTERCEPTING DITCH</p>	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gulying. Works well with DIVERSION DIKE (KEY 10)		•				•	•
12	 <p>INTERCEPTING DITCH AND DIVERSION DIKE</p>	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gulying.		•				•	•
13	 <p>GRAVEL FILTER BERM</p>	Useful in filtering flow prior to its reentry into a lake, stream or wetland. Works well with SEDIMENT TRAP (KEY 20) and TEMPORARY BYPASS CHANNEL (KEY 35). Not to be used in lieu of a CHECK DAM (KEY 37) in a ditch.		•		•			•
14	 <p>GRAVEL ACCESS APPROACH</p>	Provides a stable access to roadways minimizing fugitive dust and tracking of materials onto public streets and highways.						•	•

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

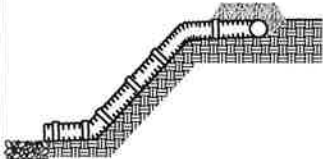

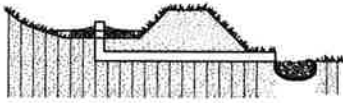
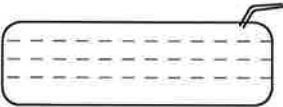

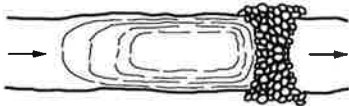


**SOIL EROSION & SEDIMENTATION  
CONTROL MEASURES**

9-10-2010  
F.H.W.A. APPROVAL

6-3-2010  
PLAN DATE

**R-96-E**

SHEET  
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KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
15	 <p>SLOPE DRAIN SURFACE</p>	Excellent device for carrying water down slopes without creating an erosive condition. Generally used in conjunction with DIVERSION DIKE (KEY 10), INTERCEPTING DITCH (KEY 11) and INTERCEPTING DITCH AND DIVERSION DIKE (KEY 12) to direct flow to a stable discharge area or SEDIMENT TRAP (KEY 20).		•		•			
16	 <p>TREES, SHRUBS AND PERENNIALS</p>	Trees, shrubs and perennials can provide low maintenance long term erosion protection. These plants may be particularly useful where site aesthetics are important along the roadside slopes.		•			•		
17	 <p>PIPE DROP</p>	Effective way to allow water to drop in elevation very rapidly without causing an erosive condition. Also works as a sediment collector device. May be left in place as a permanent erosion control device.		•		•			
18	 <p>DEWATERING WITH FILTER BAG</p>	It may be necessary to dewater from behind a cofferdam or construction dam to create a dry work site. Discharged water must be pumped to a filter bag. A GRAVEL FILTER BERM (KEY 13) may be placed downslope of the filter bag to provide additional filtration prior to entering any stream or wetland.			•				•
19	 <p>ENERGY DISSIPATORS</p>	A device to prevent the erosive force of water from eroding soils. Used at outlets of culverts, drainage pipes or other conduits to reduce the velocity of the water. Prevents structure scouring and undermining.		•	•	•	•		
20	 <p>SEDIMENT TRAP</p>	Used to intercept concentrated flows and prevent sediments from being transported off site or into a watercourse or wetland. The size of a Sediment Trap is 5 cubic yards or less. Works well when used with CHECK DAM (KEY 37).		•		•	•		
21	 <p>SEDIMENT BASIN</p>	A Sediment Basin is used to trap sediments from an upstream construction site. Requires periodic inspections, repairs, and maintenance. Where practical, sediments should be contained on site. A Sediment Basin should be the last choice of sediment control. The size of a Sediment Basin is greater than 5 cubic yards.			•				•
22	 <p>VEGETATIVE BUFFER AT WATERCOURSE</p>	This practice is used to maintain a vegetative buffer adjacent to a watercourse. When utilized with SILT FENCE (KEY 26) it will, under normal circumstances, prevent sediment from leaving the construction site.		•	•	•		•	•

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

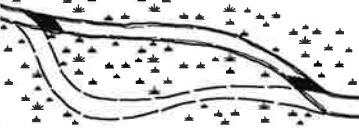
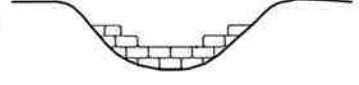
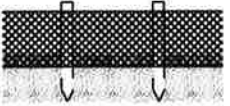


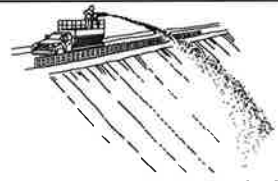
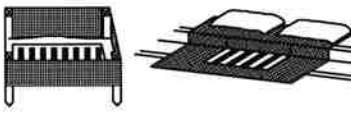
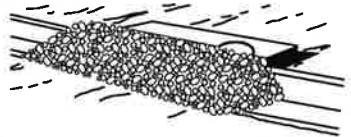
**SOIL EROSION & SEDIMENTATION  
CONTROL MEASURES**

9-10-2010  
F.H.W.A. APPROVAL

6-3-2010  
PLAN DATE

**R-96-E**

SHEET  
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KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
23	 <p><b>STREAM RELOCATION</b></p>	<p>A detail depicting the proper procedures for stream relocation. Maintains same width, depth, and flow velocity as the natural stream. Revegetate banks with PERMANENT/TEMPORARY SEEDING (KEY 3), MULCHING AND MULCH ANCHORING (KEY 28), MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS (KEY 33) and woody plants to shade the stream.</p>		•					•
24	 <p><b>SAND AND STONE BAGS</b></p>	<p>Sand and stone bags are a useful tool in the prevention of erosion. Can be used to divert water around a construction site by creating a DIVERSION DIKE (KEY 10). Works well for creating a CONSTRUCTION DAM (KEY 36) and temporary culvert end fill.</p>	•	•	•	•	•	•	•
25	 <p><b>SAND FENCE AND DUNE STABILIZATION</b></p>	<p>A Sand Fence traps blowing sand by reducing wind velocities. Can be used to prevent sand from blowing onto roads. Must be maintained until sand source is stabilized.</p>	•				•	•	
26	 <p><b>SILT FENCE</b></p>	<p>A permeable barrier erected below disturbed areas to capture sediments from sheet flow. Can be used to divert small volumes of water to stable outlets. Ineffective as a filter and should never be placed across streams or ditches where flow is concentrated.</p>	•				•	•	
27	 <p><b>PLASTIC SHEETS OR GEOTEXTILE COVER</b></p>	<p>Plastic Sheets can be used to create a liner in temporary channels. Can also be used to create a temporary cover to prevent erosion of stockpiled materials.</p>	•	•	•			•	
28	 <p><b>MULCHING AND MULCH ANCHORING</b></p>	<p>Anchored mulch provides erosion protection against rain and wind. Mulch must be used on seeded areas to promote water retention and growth. Should be inspected after every rainstorm and repaired as necessary until vegetation is well established.</p>	•		•		•	•	
29	 <p><b>INLET PROTECTION FABRIC DROP</b></p>	<p>Provides settling and filtering of silt laden water prior to its entry into the drainage system. Can be used in median and side ditches where vegetation will be disturbed. Allows for early use of drainage systems prior to project completion.</p>			•		•		
30	 <p><b>INLET PROTECTION GEOTEXTILE AND STONE</b></p>	<p>Provides settling and filtering of silt laden water prior to its entry into the drainage system. Should be used in paved areas where drainage structures are existing or proposed. Allows for early use of drainage systems prior to project completion.</p>			•		•		

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**SOIL EROSION & SEDIMENTATION  
CONTROL MEASURES**

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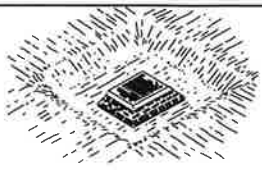
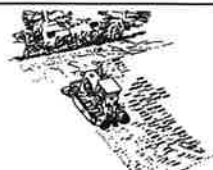

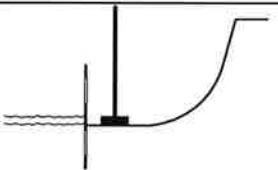

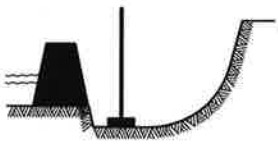

F. H. W. A. APPROVAL

6-3-2010

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**R-96-E**

SHEET  
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KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
31	 <p>INLET PROTECTION SEDIMENT TRAP</p>	<p>An Inlet Protection Sediment Trap is a temporary device that can be used in areas where medium flows are anticipated. Effective in trapping small quantities of sediments prior to water entering the drainage system. Can be used in areas such as median and side ditches.</p>			•		•		
32	 <p>SLOPE ROUGHENING AND SCARIFICATION</p>	<p>A simple and economical way to reduce soil erosion by wind and water. Can be accomplished by harrowing with a disk, back blading, or tracking with a dozer perpendicular to the slope.</p>	•				•	•	
33	 <p>MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS</p>	<p>Mulch blankets provide an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion. High velocity mulch blankets work well for stabilizing the bottom of ditches in waterways.</p>	•		•		•	•	
34	 <p>COFFERDAM</p>	<p>Used to create a dry construction area and protect the stream from raw erodible areas. Must be pumped dry or dewatered according to DEWATERING WITH FILTER BAG (KEY 18).</p>		•					•
35	 <p>TEMPORARY BYPASS CHANNEL</p>	<p>Utilized when a dry construction area is needed. Isolates stream flows from raw erodible areas minimizing erosion and subsequent siltation. Can incorporate SEDIMENT BASIN (KEY 21), CHECK DAM (KEY 37), and GRAVEL FILTER BERM (KEY 13) to remove sediments from water. Construction sequence of events may be necessary.</p>			•				•
36	 <p>CONSTRUCTION DAM</p>	<p>Used to create a dry or slack water area for construction. Isolates the stream from raw erodible areas. Can be created out of any non-erodible materials such as SAND AND STONE BAGS (KEY 24), a gravel dike with clay core or plastic liner, steel plates or plywood.</p>		•					•
37	 <p>CHECK DAM</p>	<p>Can be constructed across ditches or any area of concentrated flow. Protects vegetation in early stages of growth. A Check Dam is intended to reduce water velocities and capture sediment. A Check Dam is not a filtering device.</p>	•		•			•	

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**SOIL EROSION & SEDIMENTATION  
CONTROL MEASURES**

9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	<b>R-96-E</b>	SHEET 5 OF 6
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NOTES:

THIS STANDARD PLAN WILL SERVE AS A KEY IN THE SELECTION OF THE APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL DETAILS. THIS PLAN ALSO PROVIDES THE KEY TO THE NUMBERED EROSION CONTROL ITEMS SPECIFIED ON THE CONSTRUCTION PLANS. REFER TO THE MDOT SOIL EROSION & SEDIMENTATION CONTROL MANUAL, SECTION 6 FOR SPECIFIC DETAILS, CONTRACT ITEMS (PAY ITEMS), AND PAY UNITS.

COLLECTED SILT AND SEDIMENT SHALL BE REMOVED PERIODICALLY TO MAINTAIN THE EFFECTIVENESS OF THE SEDIMENT TRAP, SEDIMENT BASIN, AND SILT FENCE. AGGREGATES PLACED IN STREAMS SHOULD CONTAIN A MINIMUM OF FINES.

TEMPORARY EROSION AND SEDIMENTATION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT CONTROL MEASURES TO ASSURE EFFECTIVE CONTROL OF SEDIMENTS DURING CONSTRUCTION OF THE PROJECT.

ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AFTER VEGETATION ESTABLISHMENT OR AT THE DISCRETION OF THE ENGINEER. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**SOIL EROSION & SEDIMENTATION  
CONTROL MEASURES**

9-10-2010 F.H.W.A. APPROVAL	6-3-2010 PLAN DATE	R-96-E	SHEET 6 OF 6
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CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**MODULAR BLOCK RETAINING WALL**

SDA:DAD

1 of 4

04/21/23

**a. Description.** This item includes furnishing all materials and labor required for the design and construction of a precast concrete modular block (PMB) gravity retaining wall without geosynthetic reinforcement. Perform work in accordance with the requirements of this specification and in acceptable conformity with the lines, grades, design and dimensions shown in the project plans. This work also includes the preparation and submittal of detailed shop drawings for Owner's approval. Complete this work per section 706 of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, details shown on the plans, the wall system manufacturer's recommended installation procedures, approved shop drawings, and this detailed specification.

Plan and elevation sheets in the shop drawings shall include, but are not limited to the following information:

1. Elevation view of the wall noting elevations at the top of the wall, at all horizontal and vertical break points, and at least every 25 feet along the face of the wall, all steps in the wall bottom, the length, the original and final ground lines, and applied bearing pressures.
2. Plan view of the wall that indicate the offsets from the construction centerline to the wall reference line at all changes in horizontal alignment and the centerline and size of any drainage structure or drainage pipe behind, passing through, or under the wall.
3. Typical cross sections showing the relationship between existing ground elevations and proposed grades, construction limits, excavations limits, and fill requirements.
4. General notes for constructing the wall.
5. Horizontal and vertical curve data for layout and constructing the wall.
6. Summary of material quantities on the elevation sheet of the wall.
7. Detail sheets for the wall showing the following:
  - A. Details for placement of modular block facing elements.
  - B. Details for construction around utilities, drainage structures, and other appurtenances or obstructions.
  - C. Details that show end treatment at the wall point of beginning (POB) and wall point of ending (POE).

Design calculations shall be provided for each wall height change. Plans and calculations shall be signed and sealed by a Professional Engineer actively licensed in the state of Michigan.



**b. Materials.** Furnish precast modular block (PBM) gravity retaining wall from the following manufacturer or approved equal:

Keystone Retaining Wall Systems LLC  
4444 West 78th Street, Minneapolis, MN 55435  
(952) 897-1040  
[www.keystonewalls.com](http://www.keystonewalls.com)

Block Unit Type: Keystone Standard III Unit 21 Straight Split (Color: Walnut Blend)  
Cap Unit Type: Single Face Soft Split Unit (Color: Walnut Blend)

Ensure the furnished precast modular block wall (PMB) and all components are from one manufacturer.

**The Engineer must approve the installation method, face texture, and color of the block wall system prior to construction.**

1. Wall – Provide Straight Split texturing in “Walnut Blend” color as manufactured by Keystone or approved equal. Provide the manufacturer's sample photos of completed 3 completed projects prior to ordering for confirmation by the Engineer. Top blocks shall be flat tops with textured faces on front and back with accessory cap blocks on top. Steps and corner blocks shall also have the exposed ends textured as indicated on the plans.

A. Minimum compressive strength of the blocks must meet manufacturer's recommendation. Blocks must be fabricated with air-entrained concrete.

B. Provide manufacturer's test data certification, according to the MDOT Quality Assurance Procedures Manual, documenting that the blocks meet these specifications when tested as specified in ASTM C 1372. Freeze-thaw data must represent testing completed within the 12 months prior to delivery. Freeze-thaw testing must be conducted in saline solution as specified in ASTM C 1262. Freeze-thaw test results must be reported in 10-cycle intervals.

If project sampling and testing is required, sampling frequency and sample size will be as stated for concrete brick in Section G of the Materials Quality Assurance Procedures Manual.

C. Protect blocks from damage, chipping, and soiling during delivery and storage. Store off the ground, on pallets or wood platforms. Do not use blocks with chips, cracks, voids, discoloration, or other visible defects exceeding the finish and appearance limits in ASTM C 1372.

D. Blocks must conform to the manufacturer's requirements and sizes. Top blocks must be straight top. Corner block widths may be reduced by half. Provide accessory cap blocks with finished sides for all exposed edges.

E. The Contractor shall provide appropriately sized blocks for the wall, given the design parameters and subject to approved shop drawings.

F. Wall Color – The wall shall be standard concrete color.

2. Leveling Pad – Provide a 21AA aggregate leveling pad compacted in place at a

thickness that meets load requirements, or 2,000 psi concrete, per manufacturer’s recommendations.

3. Drainage System – Provide underdrain and underdrain bedding per MDOT Specification Section 404 and as recommended by the wall manufacturer.

4. Backfill - Use open graded 6A material for drainage fill and as recommended by the manufacturer.

5. Non-woven geotextile separator – Per MDOT Specification 910 as a separator layer and as recommended by the manufacturer.

**c. Construction Methods.** Excavate as required, prepare leveling pad or base, furnish and place drainage system, furnish and place backfill and erect a nonreinforced mortarless PMB gravity retaining wall of varying heights in the location shown on the plans. Examine the site and notify the Engineer of any site conditions that may adversely affect the installation or performance of the wall. Obtain the Engineer’s approval before beginning the installation. Erect the wall according to the Engineer approved shop drawings, manufacturer’s recommendations, and the following:

1. Excavate as required for footing. Do not disturb base beyond the lines shown. Over- excavation, not approved by the Engineer, will not be paid for and replacement with compacted fill and/or wall components will be required.

2. Undercut according to this specification, the plans, section 205 of the Standard Specifications and as directed by the engineer.

3. Place aggregate base on undisturbed soils or foundation soils prepared in accordance with section 302 of the Standard Specifications for Construction. Compact aggregate base to 95% dry density to provide a level, hard surface on which to place the first course of blocks.

4. Place the first course of blocks in full contact with the prepared aggregate or concrete base material. Check each block for level and alignment. Ensure that the top of all blocks in base course are at the same elevation.

5. Place each course of blocks for the full length of wall. Install geotextile fabric and drainage as recommended by the manufacturer.

6. Outlet the underdrain to a drainage structure as approved by the Engineer.

7. Place geotextile fabric over top of backfill and place restoration items to finished grade.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Retaining Wall, Modular Block .....	Square Yard

**Retaining Wall, Modular Block** includes all materials, labor, and equipment necessary to complete the work as described in this specification. Quantities will be computed based on plan quantities from the bottom of bottom block to top of top block unit multiplied by wall length. The leveling pad will not be paid for separately.

The contract unit price for **Retaining Wall, Modular Block** shall include all earthwork required to complete the wall system as described and shown on the detailed wall plans and as directed by the Engineer. Payment for this item includes excavating, removing, and disposing of unsuitable material, and backfilling and compacting. Furnishing and installing levelling pad, underdrain and geotextile fabric as shown on the plan shall be included in the contract unit price for **Retaining Wall, Modular Block**.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
MAINTENANCE OF TRAFFIC

SDA:DAD

1 of 5

04/04/23

**a. Description.** The Contractor must maintain traffic for the duration of project in accordance with subsection 104.11 and section 812 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), as shown on the plans and applicable MDOT special provisions or supplemental specifications, as directed by the Engineer, and as herein specified.

All streets included in this project will, at a minimum, remain open to traffic in one direction during construction unless otherwise approved by the Engineer.

The Contractor must maintain traffic in accordance with the following Michigan Department of Transportation (MDOT) Maintaining Traffic Typical and Work Zone Device Details apply to the project: 101-GEN-SPACING-CHARTS, 102-GEN-NOTES, 103-GEN-SIGN, 104-GEN-AB, 110-TR-NFW-2L, 137-CLT-SHIFT-0LC, WZD-100-A, and WZD-125-E. The Engineer will direct any changes or adjustments to these signing typicals and details as may be necessary to facilitate the maintenance of traffic required for the project.

The Contractor must submit a work zone traffic control plan to the Engineer in accordance with section 104 of the MDOT 2020 Standard Specifications for Construction and this detailed specification. The Engineer will have seven (7) calendar days to review the plan for acceptance or provide comments for plan revisions required to obtain acceptance. At a minimum, the plan must include the proposed ingress/egress locations for construction equipment and vehicles, traffic control devices that will be utilized to warn the motoring public of ingress/egress locations, and measures that will be taken to ensure compliance with the plan. No work will begin prior to acceptance of the work zone traffic control plan. Additional time required to obtain an accepted work zone traffic control plan will not be cause for delay or impact claims. All costs associated with obtaining an acceptable plan, providing and executing all parts of the accepted plan including required traffic control devices, or resolving an incomplete or unacceptable plan will be borne by the Contractor.

Permanent pavement marking items are included in the contract and must be placed per the MDOT 2020 Standard Specifications for Construction prior to the removal of any devices required to temporarily maintain traffic during construction, and prior to opening the project to traffic unless otherwise approved by the Engineer.

The Contractor must notify the Project Engineer a minimum of 10 business days prior to the implementation of any lane closures.

These maintaining traffic provisions are subject to change in the event of special community activities.

**b. Materials.** Materials for all devices used to temporarily control and maintain traffic must meet the requirements of section 812 of the MDOT 2020 Standard Specifications for Construction, the MMUTCD, and the applicable MDOT typicals and details included herein.

All signs must be of sizes shown on the plans unless otherwise directed by the Engineer. Install temporary signs that are to remain in the same place for 14 days or more on driven posts. Install all other temporary signs on portable supports. All signs must have a minimum bottom height of 7.0 feet.

Channelizing devices required for all lane closures must be plastic drums. 42 inch channelizing devices are permissible at certain locations with approval from the Engineer.

**c. Construction.** Construction methods must meet the requirements of section 812 of the MDOT 2020 Standard Specifications for Construction.

The Contractor must furnish and place all necessary temporary traffic control devices to maintain traffic during construction. Keep all work, construction equipment, and material storage behind the curb, or behind barricades or channelizing devices, in combination with protective fencing if required to protect open excavations. Construction activities, equipment, or material storage must not in any way hinder vehicle movement or impair traffic vision. The contractor must protect all uncured surface treatment applications as required until all traffic (pedestrian, bicycle, vehicular, etc.) can access it without damage. The Contractor must install additional barricades and protective fencing at the end of each day to insure no disturbance to the work area.

Distances between warning, regulatory, and guide signs as shown on the typical and details are approximate, and may require field adjustment, as directed by the Engineer.

The Contractor must maintain two-way traffic as shown on the typical and details, access for local traffic on local streets, and keep all intersections open to traffic at all times, unless specifically authorized in writing by the Engineer.

The Contractor must maintain traffic such that no vehicle will be required to drive into active work areas. Remove and replace patch areas that extend more than halfway across the roadway in a manner to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor must remove existing pavement markings and place temporary pavement markings as directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor must remain the property of the Contractor. The City will not be responsible for stolen or damaged signs, barricades, plastic drums and other traffic maintenance items. The Contractor must replace missing and/or damaged traffic control devices immediately, at no additional cost to the City.

1. Construction Influence Area (CIA). The CIA will consist of the width of the right-of-way and easements, and the limits of any advance temporary construction signing shown on the plans or applicable maintaining traffic typical and details along the street under construction and any/all cross streets. Posted detour routes are not included as part of the CIA.

Geddes Avenue: The CIA for this project location extends along Geddes Ave from approximately 400 feet west of Onondaga St to 100 feet east of Onondaga St, and along Onondaga St 200 feet southerly from Geddes Ave. The Contractor may use intermittent closures of the eastbound traffic and bike lanes on Geddes Ave with approval by the

Engineer during certain construction operations. Comply with MDOT Maintaining Traffic Typical 110-TR-NFW-2L when performing these closures. The Contractor may also close the parking lane along the westerly side of Onondaga St within the CIA for use as a staging area for equipment and materials during construction.

2190 South State Street: The CIA for this project location extends along S State St from approximately 200 feet south and 300 feet north of Park Crest Ave. The Contractor may use intermittent closures of the southbound traffic and bike lanes on S State St with approval by the Engineer during construction operations. Comply with MDOT Maintaining Traffic Typical 137-CLT-SHIFT-OLC when performing these closures.

The Contractor must furnish, erect, maintain, and upon completion of the work, remove all traffic control devices within and around the CIA, and along posted detour routes, for the safety and protection of traffic. This includes, but is not limited to, regulatory and warning signs, barricades, channeling devices and other minor devices where required by the Engineer.

The Contractor must coordinate its operations with all subcontractors, utilities, and/or other contractors performing work on this and other projects within, or adjacent to, the Construction Influence Area (CIA). The Contractor must avoid conflicts in maintaining traffic operations, signing, and orderly progress of other contract work.

2. Permits. Prior to the start of construction, the Contractor must obtain a "Right-of-Way" Permit from City of Ann Arbor Customer Services Unit. The Contractor must notify the Engineer and obtain a "Traffic Detour or Lane Closure" Permit from City of Ann Arbor Project Management Services Unit a minimum of 72 business hours prior to the implementation of any traffic shifts, lane closures and street closures. The City will waive the fees associated with these permits.

3. Work Times and Restrictions. Conduct all work Monday through Saturday between 7:00 a.m. and 8:00 p.m. unless there is plan authorized by the City prior to commencement of construction that identifies the alternate days and hours of work. Notify the Engineer a minimum of three (3) working days in advance of any required night work. Night work must have the approval of the City prior to commencement.

Only perform work on Sunday if it is of an emergency nature or if it is necessary to ensure vehicular and pedestrian traffic safety, and only perform it with prior approval by the City.

Perform no construction activities or interruptions to traffic, including lane closures, on Sundays and during the Memorial Day, Independence Day, and Labor Day holiday periods unless otherwise authorized by the Engineer. All streets and sidewalks that can be open must be open to motorized and non-motorized traffic. The Engineer will also not permit any trucking on or off site during these times.

During non-working periods, any area with uncompleted work must have plastic drums at specific locations and protective fencing, as directed by the Engineer, and at no additional cost to the project.

4. Traffic Restrictions. The Contractor must, at all times, conduct its work to insure the least possible obstruction to traffic and inconvenience to the general public, businesses, and residents in the vicinity of the work.

Do not impact traffic on major streets between the hours of 7:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 6:00 p.m. unless otherwise approved by the Engineer or as specified on the Lane Closure Permit. Make all major changes in traffic control either between 9:00 a.m. and 3:30 p.m. or between 6:00 p.m. and 7:00 a.m. in order to minimize interference with rush hour traffic. All traffic controls must be in place and ready for traffic each day by 7:00 a.m. and 3:30 p.m. The Engineer will permit temporary obstruction of traffic for loading and unloading of trucks if the Contractor provides traffic regulators (flag persons) in conformance with Part VI of the MMUTCD. During temporary obstructions, a minimum of two traffic regulators are required.

Maintain access to businesses, residences, and side street(s) within the CIA for the duration of the project. The Contractor must make every effort to coordinate its operations to minimize interruptions that may impact this access. The Contractor must notify the Engineer forty-eight (48) hours in advance of any work planned on or near business or residential driveways, and stage work so that it is part-width when it is necessary to work in these areas. The Engineer will not allow the Contractor to prohibit access to businesses and residences during any phase/stage of construction, unless agreed upon with the property owner(s). The Engineer may require traffic regulator (flag) control at its discretion and will direct the Contractor to provide it when necessary to maintain safe access to businesses, residences, and side street(s).

Lane widths will be a minimum of 9 feet wide. Contractor must schedule work in order to maintain traffic flow and under no circumstances stop traffic for prolonged periods as determined by the Engineer. The Contractor must suspend work within the CIA during peak traffic hours and/or when construction activities are unduly hampering or delaying traffic flow as determined by the Engineer.

5. Emergency Services. The Contractor must notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any lanes, or traffic shifts causing restricted movements of traffic or restricted access. Fire hydrants in or adjacent to the work must be kept "live" and fire fighting forces made aware of their availability at all times during construction.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, for the maintenance of traffic using the following pay items in accordance with subsection 812.04 of the MDOT 2020 Standard Specifications for Construction and any detailed specifications or special provisions included in the Contract.

<b>Pay Item</b>	<b>Pay Unit</b>
Channelizing Device, 42 inch, Fluorescent, Furn.....	Each
Channelizing Device, 42 inch, Fluorescent, Oper .....	Each
Lighted Arrow, Type C, Furn.....	Each
Lighted Arrow, Type C, Oper .....	Each

Sign Cover .....	Each
Sign, Type B, Temp, Prismatic, Furn .....	Square Foot
Sign, Type B, Temp, Prismatic, Oper .....	Square Foot
Traf Regulator Control .....	Lump Sum
Pedestrian Type II Barricade, Temp .....	Each
Minor Traffic Control, Max \$____ .....	Lump Sum

All signing and related traffic control devices deemed necessary for the maintenance of traffic on the project as shown on the applicable MDOT Maintaining Traffic Typical and Work Zone Device Details are the basis for the estimated quantities contained in the Contract, including traffic regulators, lighted arrows and minor traffic control devices.

Payment for furnishing and operating temporary traffic control devices will be for the maximum quantity in use at any one time during the entire project.

Any additional signing or maintaining traffic devices required to expedite the construction will be at the Contractor's expense unless approved by the Engineer.

Include any/all costs for transporting temporary traffic control devices in their respective contract unit prices bid for the individual traffic control items of work set up in the contract.

The Engineer will pay for temporary traffic control devices only once irrespective of the number of times moved or placed in and out of operation.

Include any/all costs for temporary traffic control devices where there is no separate pay item in the contract unit price bid for the pay item **Minor Traffic Control, Max \$\_\_\_\_**.



**DISTANCE BETWEEN TRAFFIC SIGNS, "D"**

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
D (FEET)	250	300	350	400	450	500	550	600	650	700	750

**GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE, "B"**

"B" LENGTHS	SPEED*, MPH (PRIOR TO WORK AREA)											
	20	25	30	35	40	45	50	55	60	65	70	75
B (FEET)	33	50	83	132	181	230	279	329	411	476	542	625

\* POSTED SPEED, OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

**MINIMUM MERGING TAPER LENGTH, "L" (FEET)**

OFFSET (FEET)	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
1	11	15	21	27	45	50	55	60	65	70	75
2	21	30	41	54	90	100	110	120	130	140	150
3	32	45	62	80	135	150	165	180	195	210	225
4	42	60	82	107	180	200	220	240	260	280	300
5	53	75	103	134	225	250	275	300	325	350	375
6	63	90	123	160	270	300	330	360	390	420	450
7	73	105	143	187	315	350	385	420	455	490	525
8	84	120	164	214	360	400	440	480	520	560	600
9	94	135	184	240	405	450	495	540	585	630	675
10	105	150	205	267	450	500	550	600	650	700	750
11	115	165	225	294	495	550	605	660	715	770	825
12	125	180	245	320	540	600	660	720	780	840	900
13	136	195	266	347	585	650	715	780	845	910	975
14	146	210	286	374	630	700	770	840	910	980	1050
15	157	225	307	400	675	750	825	900	975	1050	1125

NOT TO SCALE

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	<b>"B", "D" AND "L" TABLES</b> CHANNELIZING DEVICE SPACING, SIGN BORDER KEY, AND ROLL-AHEAD SPACING	DATE: MAY 2021
		NO: 101-GEN-SPACING-CHARTS		SHEET: 1 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" =  $\frac{W \times S^2}{60}$  WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = W X S WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER  
 S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA  
 W = WIDTH OF OFFSET

TYPES OF TAPERS

**UPSTREAM TAPERS**

- MERGING TAPER
- SHIFTING TAPER
- SHOULDER TAPER
- 2 TO 1 LANE ROAD TAPER

TAPER LENGTH

- L - MINIMUM
- 1/2 L - MINIMUM
- 1/3 L - MINIMUM
- 100' - MAXIMUM

**DOWNSTREAM TAPERS**

(USE IS RECOMMENDED)

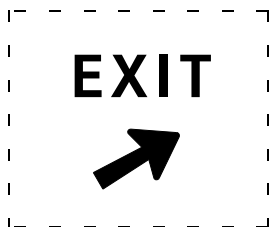
100' (PER LANE)

**MAXIMUM SPACING FOR CHANNELIZING DEVICES**

WORK ZONE SPEED LIMIT	DRUM AND 42" DEVICE SPACING (FT)		NIGHTTIME 42" DEVICE SPACING (FT)	
	TAPER	TANGENT	TAPER	TANGENT
< 45 MPH	1 x SPEED LIMIT	2 x SPEED LIMIT	25 FEET	50 FEET
≥ 45 MPH	50 FEET	100 FEET	25 FEET	50 FEET

**SIGN OUTLINE KEY**

DASHED OUTLINES INDICATE A SIGN THAT EXISTS ON SITE, AND NEEDS TO BE COVERED.



SOLID OUTLINES INDICATE A SIGN THAT IS TO BE PLACED ON THE PROJECT



NOT TO SCALE

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	<b>"B", "D" AND "L" TABLES</b> <b>CHANNELIZING DEVICE SPACING</b> <b>SIGN BORDER KEY AND ROLL-AHEAD SPACING</b>	DATE: MAY 2021
		NO: 101-GEN-SPACING-CHARTS		SHEET: 2 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 2

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5.5 TONS (STATIONARY)	40 MPH OR LESS	25 FT

\* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 4,410 POUND IMPACT VEHICLE WEIGHT.

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 3

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5 TONS (MOBILE)	45 MPH	100 FT
	50-55 MPH	150 FT
	60-75 MPH	175 FT
12 TONS (STATIONARY)	45 MPH	25 FT
	50-55 MPH	25 FT
	60-75 MPH	50 FT

\* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 10,000 POUND IMPACT VEHICLE WEIGHT.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-SPACING-CHARTS

"B", "D" AND "L" TABLES  
CHANNELIZING DEVICE SPACING  
SIGN BORDER KEY AND ROLL AHEAD SPACING

DATE: MAY 2021

SHEET: 3 OF 3

**THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL**

**GENERAL NOTES**

- G1: SEE GEN-SPACING-CHARTS FOR COMMON VALUES INCLUDING:  
 D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
 L = MINIMUM LENGTH OF TAPER  
 B = LENGTH OF LONGITUDINAL BUFFER  
 ROLL AHEAD DISTANCE
- G2: DISTANCE BETWEEN SIGNS, "D", THE VALUES FOR WHICH ARE SHOWN IN TYPICAL GEN-KEY ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- G3: ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP 350) TEST LEVEL 3, OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) TL-3 AS WELL AS THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- G4: DO NOT STORE EQUIPMENT, MATERIALS OR PERFORM WORK IN ESTABLISHED BUFFER AREAS.
- G5: ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR TRAFFIC PATTERNS FOR WORK LESS THAN THREE DAYS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

**SIGN NOTES**

- S1: ALL NON-APPLICABLE SIGNING WITHIN THE CIA MUST BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED. FOR GUIDANCE SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, SECTIONS 6.01.09 AND 6.01.10.
- S2: R5-18b SIGNS ARE ONLY REQUIRED ON FREEWAY PROJECTS WITH A DURATION OF 15 DAYS OR LONGER OR NON-FREEWAY PROJECTS WITH A DURATION OF 90 DAYS OR LONGER. TO APPLY THIS TYPICAL WITHOUT R5-18b SIGNS, REMOVE THE SIGNS AND CONSOLIDATE THE SEQUENCE AS APPROPRIATE.
- S3: R5-18c IS ONLY REQUIRED IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. OMIT THIS SIGN IN SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE.
- S4: ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W20-5 SIGNS.
- S5: PLACE ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE WORK ZONE SPEED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK ZONE, OR AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT. PLACE ADDITIONAL SPEED LIMIT SIGNS AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS ARE MORE THAN 2 MILES APART. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, PLACE ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED BEYOND THE LIMITS OF THE WORK AREA AS INDICATED. IF PERMANENT SIGNS DISPLAYING THE CORRECT SPEED LIMIT ARE POSTED, OMIT ALL W3-5b AND R2-1 SIGNS AND REDUCE SPACING ACCORDINGLY.
- S6: FABRICATE SPECIAL SIGNS IN ACCORDANCE WITH CURRENT SIGNING DESIGN STANDARDS.
- S7: PLACE ADDITIONAL R8-3 SIGNS AT A MAXIMUM 500' SPACING THROUGHOUT THE WORK ZONE.
- S8: WHEN SPEED LIMIT SIGNS CANNOT BE PLACED SIDE BY SIDE AS SHOWN, PLACE THEM "D" DISTANCE APART.
- S9: STOP SIGNS NOT REQUIRED IF SIGNALS ARE ON 4-WAY FLASHING RED. STOP AHEAD SIGNS ARE NOT REQUIRED IF THERE IS ADEQUATE VISIBILITY OF THE STOP SIGN OR IF SIGNALS ARE BEING USED TO CONTROL TRAFFIC.
- S10: PLACE REDUCED SPEED ZONE AHEAD SIGN (W3-5b) HERE WHEN USING A SPEED REDUCTION IN THIS DIRECTION.
- S11: THE NUMBER OF W1-6 SHIFT SIGNS TO PLACE FOR A SHIFT IS AS FOLLOWS:  
 SHIFTS 4FT OR LESS, PLACE ONE W1-6(R)(L)  
 SHIFTS 5FT TO 12FT, PLACE TWO W1-6(R)(L)  
 SHIFTS MORE THAN 12FT, PLACE THREE OR MORE W1-6(R)(L) SIGNS DEPENDING UPON LENGTH OF SHIFT AND AS PER THE ENGINEER.
- S12: PLACE R2-1 SIGNS AS DETAILED IN NOTE S5 WHEN THERE IS A SPEED REDUCTION IN THIS DIRECTION

**TRAFFIC REGULATOR NOTES**

- TR1: TRAFFIC REGULATORS MUST FOLLOW ALL THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS, THE CURRENT VERSIONS OF THE TRAFFIC REGULATOR'S INSTRUCTION MANUAL AND THE VIDEO "HOW TO SAFELY REGULATE TRAFFIC IN MICHIGAN". THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS IS DETERMINED BY THE ROADWAY ADT, GEOMETRICS, AND AS DIRECTED BY THE ENGINEER.
- TR2: PROVIDE APPROPRIATE BALLOON LIGHTING TO SUFFICIENTLY ILLUMINATE TRAFFIC REGULATOR'S STATIONS WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS.
- TR3: PROVIDE EITHER A STOP/SLOW AFAD OR A RED/YELLOW LENS AFAD, MEETING THE REQUIREMENTS OF THE MMUTCD

**TEMPORARY TRAFFIC CONTROL DEVICE NOTES**

- TCD1: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD NOT EXCEED 1.0 TIMES THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 50 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TAPERS ARE NOT TO EXCEED 25 FEET AT NIGHT.
- TCD2: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TANGENT SHOULD NOT EXCEED TWICE THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 100 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TANGENTS ARE NOT TO EXCEED 50 FEET AT NIGHT.
- TCD3: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TCD4: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TCD5: USE OBJECT MARKER SIGNS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53, AND R-126) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM. THE OBJECT MARKERS MUST BE A MINIMUM OF 12 INCHES IN WIDTH AND 36 INCHES IN HEIGHT AND HAVE ORANGE AND WHITE RETROREFLECTIVE SHEETING. THE RETROREFLECTIVE SHEETING MUST HAVE ALTERNATING DIAGONAL ORANGE AND WHITE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION VEHICULAR TRAFFIC IS TO PASS.
- TCD6: PLACE LIGHTED ARROW PANELS AS CLOSE TO THE BEGINNING OF TAPERS AS PRACTICAL, BUT NOT IN A MANNER THAT WILL OBSCURE OR CONFUSE APPROACHING MOTORISTS WHEN PHYSICAL LIMITATIONS RESTRICT PLACEMENT. IN CURBED SECTIONS, IF ARROW BOARD CANNOT BE PLACED BEHIND CURB, PLACE ARROW BOARD IN THE CLOSED LANE AS CLOSE TO THE BEGINNING OF TAPER AS POSSIBLE.
- TCD7: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TCD8: WHERE THE SHIFTED SECTION IS SHORTER THAN 600 FEET, A DOUBLE REVERSE CURVE SIGN (W24-1) CAN BE USED INSTEAD OF THE FIRST REVERSE CURVE SIGN, AND THE SECOND REVERSE CURVE SIGN CAN BE OMITTED.
- TCD9: RUMBLE STRIPS ARE TO BE PLACED AS SPECIFIED IN THE CONTRACT. IF NOT SPECIFIED IN THE CONTRACT, PLACE RUMBLE STRIPS AS SHOWN, AND IN ACCORDANCE WITH THE RUMBLE STRIP MANUFACTURER'S RECOMMENDATIONS. AN ARRAY OF RUMBLE STRIPS CONTAINS THREE RUMBLE STRIPS. PLACE THE RUMBLE STRIPS IN THE ARRAY AT A CONSISTENT DISTANCE, BETWEEN 10' AND 20' APART.
- TCD10: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOMMENDED AND CORRECT PCMS MESSAGING. STAGGER PCMS THAT ARE ON OPPOSING SIDES OF THE ROAD 1000 FEET FROM EACH OTHER.

**RAMP NOTES**

- RMP1: WHEN CONDITIONS ALLOW, E5-1 SIGNS MUST BE REMOVED OR COVERED AND CHANNELIZING DEVICES MUST BE POSITIONED TO ENABLE RAMP TRAFFIC TO DIVERGE IN A FREE MANNER
- RMP2: STOP AND YIELD CONDITIONS SHOULD BE AVOIDED WHENEVER PRACTICAL. WHEN CONDITIONS WARRANT, R1-1 SIGNS MAY BE USED IN PLACE OF R1-2 SIGNS. WHEN R-1 SIGNS ARE USED, W3-1 SIGNS MUST BE USED IN PLACE OF W3-2 SIGNS. CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP TO COMPLETE WORK TO ALLOW AN ADEQUATE MERGE DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR YIELD CONDITIONS.

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	<b>TRAFFIC TYPICALS NOTE SHEET</b>	DATE: MAY 2022
		NO: <b>102-GEN-NOTES</b>		SHEET:  1 OF 2
FILE: 102-GEN-NOTES.dgn				

THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

**SIGNAL NOTES**

- SIG1: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SIG2: SIGNAL IS IN OPERATION.
- SIG3: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SIG4: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SIG5: THE LOWEST POINT OF THE BUCKET MAY NOT TRAVEL BELOW 14 FOOT VERTICAL CLEARANCE. THE CONTRACTOR MUST UTILIZE AN ALTERNATE SET UP, OR PLACE THE INTERSECTION IN A 4 WAY STOP IF THE 14 FOOT VERTICAL CLEARANCE IS COMPROMIZED. USE TRAFFIC REGULATORS TO CONTROL TRAFFIC THROUGH THE INTERSECTION WHEN TRAFFIC IS PLACED IN A 4 WAY STOP.
- SIG6: DELINEATE THE TRUCK WITH CHANNELIZING DEVICES. THE POSITION OF THE TRUCK MAY BE MOVED TO FACILITATE WORK.

**MAINTENANCE AND SURVEYING NOTES**

- MS1: WHENEVER STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLES SHOULD MAINTAIN THE RECOMENDED DISTANCE FROM THE WORK AREA AND PROCEED AT THE SAME SPEED. THE SHADOW VEHICLE SHOULD SLOW DOWN AND TRAVEL AT A FARTHER DISTANCE TO PROVIDE ADEQUATE SIGHT DISTANCE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES.
- MS2: WORKERS OUTSIDE OF VEHICLES SHOULD WORK WITHIN 150' OF WORK VEHICLES WITH AN ACTIVATED BEACON, BETWEEN THE "BEGIN WORK CONVOY" SIGN AND THE "END WORK CONVOY" SIGN, OR BETWEEN THE "WORK ZONE BEGINS" AND "END ROAD WORK" SIGN.
- MS3: WORK OR SHADOW VEHICLES WITH OR WITHOUT A TMA MAY BE USED TO SEPARATE THE WORK SPACE FROM TRAFFIC. IF USED, THE VEHICLES SHOULD BE PARKED ACCORDING TO THE ROLL AHEAD DISTANCE TABLES.
- MS4: WORK AND SHADOW VEHICLES SHALL BE APPROPRIATELY EQUIPPED WITH AN ACTIVATED AMBER BEACON.
- MS5: WHEN WORKERS ARE OUTSIDE THEIR VEHICLES IN AN EXISTING LANE WHILE A MOBILE OPERATION IS OCCURRING DURING THE NIGHTTIME HOURS, CHANNELIZING DEVICES TO DELINEATE OPEN OR CLOSED LANES AT 50 FT SPACING MUST BE USED. AN EXAMPLE OF AN OPERATION (BUT NOT LIMITED TO) IS THE LAYOUT OF CONCRETE PATCHES.
- MS6: W21-6 AND W20-1 SIGNS MAY BE SUBSTITUTED AS DETERMINED BY THE TYPE OF WORK TAKING PLACE AS PER THE ENGINEER.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 102-GEN-NOTES

TRAFFIC TYPICALS  
NOTE SHEET

DATE: MAY 2022  
SHEET:

2 OF 2

FILE: 102-GEN-NOTES.dgn

SIGN NUMBER KEY

 E5-1f 48" x 48" 60" x 48"	 E5-2 48" x 36"	 E5-2a 48" x 36"	 E5-3 48" x 36"	 E13-1P VAR x 24"	 E13-1aP 36" x 24"	 G20-1 60" x 24"	 G20-2 48" x 24"
 G20-4 36" x 18"	 I-6a 18" x 18" 24" x 24" 30" x 30"	 M1-1 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-1 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-2 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-2 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-3 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-3 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"
 M1-4 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-4 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-5 18" x 18" 24" x 24" 30" x 30" 36" x 36"	 M1-5a 18" x 18" 24" x 24"	 M1-6 18" x 18" 24" x 24" 36" x 36"	 M1-6 22.5" x 18" 30" x 24" 45" x 36"	 M3-1 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M3-2 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M3-3 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M3-4 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-1 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-1a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-2 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-3 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-4 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-5 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M4-6 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-7 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-7a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-8 12" x 6" 18" x 9" 24" x 12" 30" x 15"	 M4-8a 24" x 18"	 M4-8b 24" x 12"	 M4-9L 30" x 24" 48" x 36" 60" x 48"	 M4-9R 30" x 24" 48" x 36" 60" x 48"
 M4-9j 30" x 24" 48" x 36" 60" x 48"	 M4-9kL 30" x 30" 48" x 42" 60" x 54"	 M4-9kR 30" x 30" 48" x 42" 60" x 54"	 M4-9mL 30" x 30" 48" x 42" 60" x 54"	 M4-9mR 30" x 30" 48" x 42" 60" x 54"	 M4-9dL 12" x 18"	 M4-9dR 12" x 18"	 M4-9e 12" x 18"
 M4-9f 12" x 18"	 M4-9gL 12" x 18"	 M4-9gR 12" x 18"	 M4-9h 12" x 24"	 M4-9i 12" x 18"	 M4-10L 48" x 18"	 M4-10R 48" x 18"	 M4-11a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M5-1L 12" x 9" 21" x 15" 30" x 21"	 M5-1R 12" x 9" 21" x 15" 30" x 21"	 M5-2L 12" x 9" 21" x 15" 30" x 21"	 M5-2R 12" x 9" 21" x 15" 30" x 21"	 M5-3 12" x 9" 21" x 15" 30" x 21"	 M6-1L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-1R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-2L 12" x 9" 18" x 12" 21" x 15" 30" x 21"
 M6-2R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-3 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-4 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-5 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-6L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-6R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-7L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-7R 12" x 9" 18" x 12" 21" x 15" 30" x 21"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICALS  
SIGN SHEET

DATE:  
JUNE 2021

SHEET:

1 OF 5

FILE: 103-GEN-SIGN.dgn

SIGN NUMBER KEY

NORTH  
10  
KEEP LEFT  
M8-1gL  
36" x 66"

SOUTH  
27  
KEEP RIGHT  
M8-1gR  
36" x 66"

NORTH SOUTH  
10 27  
M8-2d  
60" x 48"

OM-3L  
12" x 36"  
24" x 48"  
36" x 72"

OM-3R  
12" x 36"  
24" x 48"  
36" x 72"

STOP  
R1-1  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"

FRONT BACK  
STOP SLOW  
R1-1a  
18" x 18"  
24" x 24"

YIELD  
R1-2  
18"  
24"  
30"  
36"  
48"  
60"

TO ONCOMING TRAFFIC  
R1-2aP  
24" x 18"  
36" x 30"  
48" x 36"

SPEED LIMIT  
XX  
R2-1  
18" x 24"  
24" x 30"  
30" x 36"  
36" x 48"  
48" x 60"

WHERE WORKERS PRESENT  
45  
R2-1a  
48" x 60"

R3-1  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"

R3-2  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"

NO TURNS  
R3-3  
24" x 24"  
36" x 36"  
48" x 48"

R3-4  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"

ONLY  
R3-5L  
30" x 36"  
36" x 48"

ONLY  
R3-5R  
30" x 36"  
36" x 48"

ONLY  
R3-5a  
30" x 36"  
36" x 48"

R3-6L  
30" x 36"  
42" x 48"

R3-6R  
30" x 36"  
42" x 48"

LEFT LANE MUST TURN LEFT  
R3-7L  
30" x 30"  
36" x 36"

RIGHT LANE MUST TURN RIGHT  
R3-7R  
30" x 30"  
36" x 36"

ONLY ONLY  
R3-8c  
36" x 30"

ONLY ONLY  
R3-8d  
36" x 30"

DO NOT PASS  
R4-1  
12" x 18"  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

PASS WITH CARE  
R4-2  
12" x 18"  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

R4-7  
12" x 18"  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

R4-8  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

STAY IN LANE  
R4-9  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

DO NOT ENTER  
R5-1  
30" x 30"  
36" x 36"  
48" x 48"

WRONG WAY  
R5-1a  
30" x 18"  
36" x 24"  
42" x 30"

INJURE / KILL A WORKER \$7500+ 15 YEARS  
R5-18b  
48" x 60"

WORK ZONE BEGINS  
R5-18c  
48" x 48"

BEGIN WORK CONVOY  
R5-18d  
78" x 12"

END WORK CONVOY  
R5-18e  
72" x 12"

USE ALL LANES DURING BACKUPS  
R5-18f  
48" x 60"

FORM ONE LANE RIGHT  
R5-18g  
30" x 42"

DO NOT FOLLOW TRUCKS INTO WORK ZONE  
R5-18h  
48" x 60"

ONE WAY  
R6-1L  
36" x 12"  
54" x 18"

ONE WAY  
R6-1R  
36" x 12"  
54" x 18"

ONE WAY  
R6-2L  
12" x 16"  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

ONE WAY  
R6-2R  
12" x 16"  
18" x 24"  
24" x 30"  
36" x 48"  
48" x 60"

R8-3  
12" x 12"  
18" x 18"  
24" x 24"  
36" x 36"  
48" x 48"

PEDESTRIAN CROSSWALK  
R9-8  
36" x 18"

SIDEWALK CLOSED  
R9-9  
24" x 12"  
30" x 18"

SIDEWALK CLOSED USE OTHER SIDE  
R9-10  
24" x 12"  
48" x 24"

SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11L  
24" x 12"  
48" x 36"

SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11R  
24" x 12"  
48" x 36"

SIDEWALK CLOSED CROSS HERE  
R9-11aL  
24" x 12"  
48" x 24"

SIDEWALK CLOSED CROSS HERE  
R9-11aR  
24" x 12"  
48" x 24"

STOP HERE ON RED  
R10-6b  
36" x 54"

ROAD CLOSED  
R11-2  
48" x 30"

RAMP CLOSED  
R11-2a  
48" x 30"

EXIT CLOSED  
R11-2b  
48" x 30"

CROSSOVER CLOSED  
R11-2c  
60" x 30"

ROAD CLOSED 10 MILES AHEAD LOCAL TRAFFIC ONLY  
R11-3a  
60" x 30"

BRIDGE OUT 10 MILES AHEAD LOCAL TRAFFIC ONLY  
R11-3b  
60" x 30"

ROAD CLOSED TO THRU TRAFFIC  
R11-4  
60" x 30"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 103-GEN-SIGN

TRAFFIC TYPICALS SIGN SHEET

DATE: JUNE 2021

SHEET:

FILE: 103-GEN-SIGN.dgn

2 OF 5

SIGN NUMBER KEY



W1-1L  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-1R  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-2L  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-2R  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-2bL  
36" x 36"  
48" x 48"



W1-2bR  
36" x 36"  
48" x 48"



W1-3L  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-3R  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4L  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4R  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4bL  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4bR  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4cL  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W1-4cR  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W24-1L  
30" x 30"  
36" x 36"  
48" x 48"

ALL LANES

W24-1cP  
24" x 18"  
30" x 24"



W24-1R  
30" x 30"  
36" x 36"  
48" x 48"



W24-1aL  
30" x 30"  
36" x 36"  
48" x 48"



W24-1aR  
30" x 30"  
36" x 36"  
48" x 48"



W24-1bL  
30" x 30"  
36" x 36"  
48" x 48"



W24-1bR  
30" x 30"  
36" x 36"  
48" x 48"



W1-6L  
24" x 12"  
36" x 18"  
48" x 24"  
60" x 30"  
96" x 48"



W1-6R  
24" x 12"  
36" x 18"  
48" x 24"  
60" x 30"  
96" x 48"



W1-8L  
12" x 18"  
18" x 24"  
24" x 30"  
30" x 36"  
36" x 48"



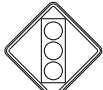
W1-8R  
12" x 18"  
18" x 24"  
24" x 30"  
30" x 36"  
36" x 48"



W3-1  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W3-2  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W3-3  
18" x 18"  
30" x 30"  
36" x 36"  
48" x 48"



W3-4  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W3-4b  
30" x 30"  
36" x 36"  
48" x 48"



W3-5  
36" x 36"  
48" x 48"



W3-5a  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W3-5b  
30" x 30"  
36" x 36"  
48" x 48"



W4-1L  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-1R  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-2L  
30" x 30"  
36" x 36"  
48" x 48"



W4-2R  
30" x 30"  
36" x 36"  
48" x 48"



W4-3L  
30" x 30"  
36" x 36"  
48" x 48"



W4-3R  
30" x 30"  
36" x 36"  
48" x 48"



W4-5L  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-5R  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-5P  
18" x 24"  
24" x 30"



W4-6L  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-6R  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W4-7L  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W4-7R  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W5-1  
30" x 30"  
36" x 36"  
48" x 48"



W5-2  
18" x 18"  
30" x 30"  
36" x 36"  
48" x 48"



W5-3  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W5-4  
30" x 30"  
36" x 36"  
48" x 48"



W6-1  
30" x 30"  
36" x 36"  
48" x 48"



W6-2  
30" x 30"  
36" x 36"  
48" x 48"



W6-3  
30" x 30"  
36" x 36"  
48" x 48"



W6-4  
12" x 18"



W7-1  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W7-1a  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-1  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICAL  
SIGN SHEET

DATE:  
JUNE 2021  
SHEET:

3 OF 5

FILE: 103-GEN-SIGN.dgn



SIGN NUMBER KEY



W8-2  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-3  
18" x 18"  
30" x 30"  
36" x 36"  
48" x 48"



W8-4  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-5  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-5P  
24" x 18"  
30" x 24"  
36" x 30"



W8-7  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-8  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-9  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-11  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-12  
30" x 30"  
36" x 36"  
48" x 48"



W8-14  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-15  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



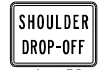
W8-15P  
24" x 18"  
30" x 24"  
36" x 30"



W8-17L  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-17R  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-17P  
24" x 18"  
30" x 24"  
36" x 30"



W8-18  
24" x 24"  
36" x 36"  
48" x 48"



W8-23  
24" x 24"  
36" x 36"  
48" x 48"



W8-24  
30" x 30"  
36" x 36"  
48" x 48"



W8-25  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W8-26  
36" x 36"  
48" x 48"



W9-1L  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W9-1R  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W9-2L  
30" x 30"  
36" x 36"  
48" x 48"



W9-2R  
30" x 30"  
36" x 36"  
48" x 48"



W9-3C  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W9-3L  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W9-3R  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W9-3a  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W9-3b  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W11-10  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W11-10a  
30" x 30"  
36" x 36"  
48" x 48"



W11-24  
36" x 36"  
48" x 48"



W12-1  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



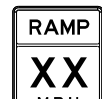
W12-2  
18" x 18"  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W13-1P  
18" x 18"  
24" x 24"  
30" x 30"



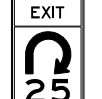
W13-2  
24" x 30"  
36" x 48"  
48" x 60"



W13-3  
24" x 30"  
36" x 48"  
48" x 60"



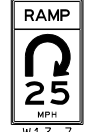
W13-4P  
24" x 24"  
36" x 36"



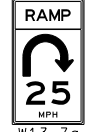
W13-6  
24" x 42"  
36" x 60"  
48" x 84"



W13-6a  
24" x 42"  
36" x 60"  
48" x 84"



W13-7  
24" x 42"  
36" x 60"  
48" x 84"



W13-7a  
24" x 42"  
36" x 60"  
48" x 84"



W14-3  
36" x 24"  
40" x 30"  
48" x 36"  
64" x 48"



W16-2P  
18" x 12"  
24" x 18"  
30" x 24"



W16-4aP  
18" x 12"  
24" x 18"  
30" x 24"  
36" x 30"



W16-12P  
24" x 18"



W16-13P  
24" x 18"  
30" x 24"



W20-1  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W20-1a  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W20-1b  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W20-1c  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W20-1d  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W20-2  
30" x 30"  
36" x 36"  
48" x 48"



W20-3  
30" x 30"  
36" x 36"  
48" x 48"



W20-3a  
30" x 30"  
36" x 36"  
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICALS  
SIGN SHEET

DATE:  
JUNE 2021

SHEET:

4 OF 5

FILE: 103-GEN-SIGN.dgn

SIGN NUMBER KEY



W20-3b  
30" x 30"  
36" x 36"  
48" x 48"



W20-4  
30" x 30"  
36" x 36"  
48" x 48"



W20-4c  
36" x 36"  
48" x 48"



W20-5C  
30" x 30"  
36" x 36"  
48" x 48"



W20-5L  
30" x 30"  
36" x 36"  
48" x 48"



W20-5L1  
30" x 30"  
36" x 36"  
48" x 48"



W20-5L2  
30" x 30"  
36" x 36"  
48" x 48"



W20-5R  
30" x 30"  
36" x 36"  
48" x 48"



W20-5R1  
30" x 30"  
36" x 36"  
48" x 48"



W20-5R2  
30" x 30"  
36" x 36"  
48" x 48"



W20-5aL2  
30" x 30"  
36" x 36"  
48" x 48"



W20-5aL3  
30" x 30"  
36" x 36"  
48" x 48"



W20-5aR2  
30" x 30"  
36" x 36"  
48" x 48"



W20-5aR3  
30" x 30"  
36" x 36"  
48" x 48"



W20-7a  
30" x 30"  
36" x 36"  
48" x 48"



W20-8  
24" x 18"



W20-9  
54" x 48"



W20-10  
48" x 24"  
66" x 30"



W20-11  
12" x 18"



W20-12P  
VARIABLE x 12"



W20-13P  
VARIABLE x 12"



W20-14L  
36" x 36"  
48" x 48"



W20-14R  
36" x 36"  
48" x 48"



W20-14dP  
36" x 12"  
48" x 12"



W20-14bP  
36" x 12"  
48" x 12"



W20-15  
36" x 36"  
48" x 48"



W20-15a  
36" x 36"  
48" x 48"



W20-15c  
48" x 54"



W20-15d  
48" x 54"



W20-16  
36" x 36"  
48" x 48"



W20-17  
36" x 36"  
48" x 48"



W21-1  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-2  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-2  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-3  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-4  
36" x 18"



W21-5  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-5dL  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W21-5dR  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W21-5bL  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W21-5bR  
30" x 30"  
36" x 36"  
48" x 48"  
60" x 60"



W21-6  
24" x 24"  
30" x 30"  
36" x 36"  
48" x 48"



W21-7  
30" x 30"  
36" x 36"  
48" x 48"



W21-8  
30" x 30"  
36" x 36"  
48" x 48"



W22-1  
30" x 30"  
36" x 36"  
48" x 48"



W22-2  
42" x 36"



W22-3  
36" x 30"  
42" x 36"



W23-1  
48" x 24"



W23-2  
36" x 36"  
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

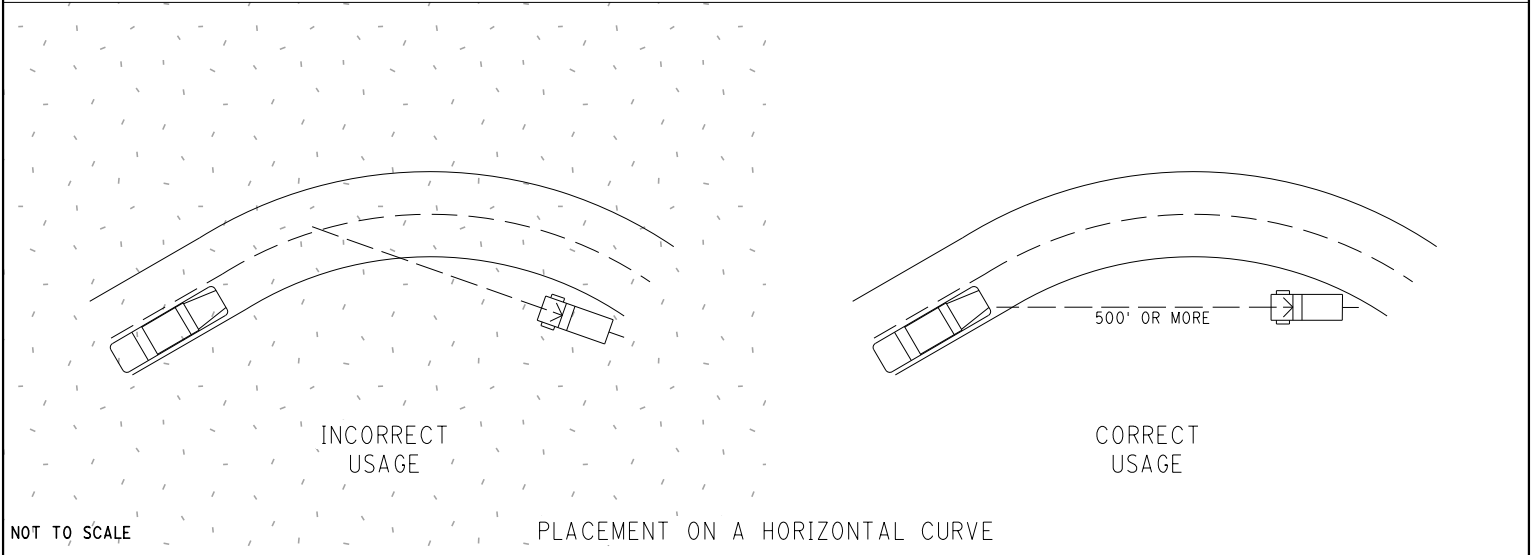
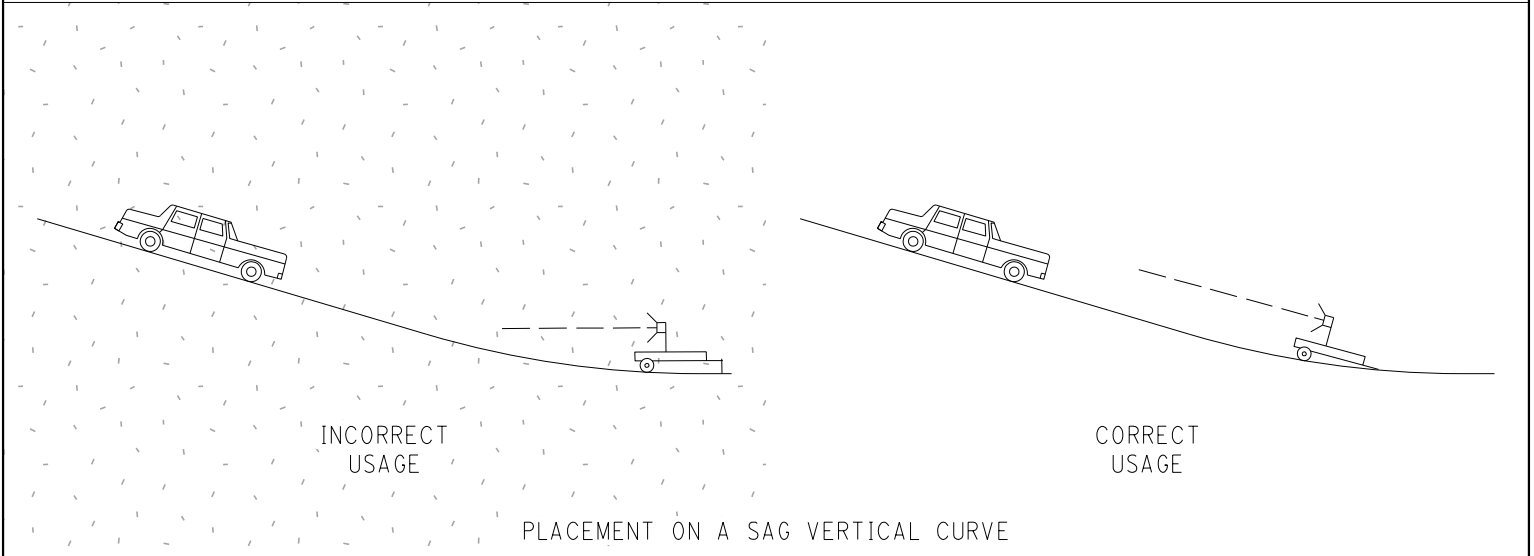
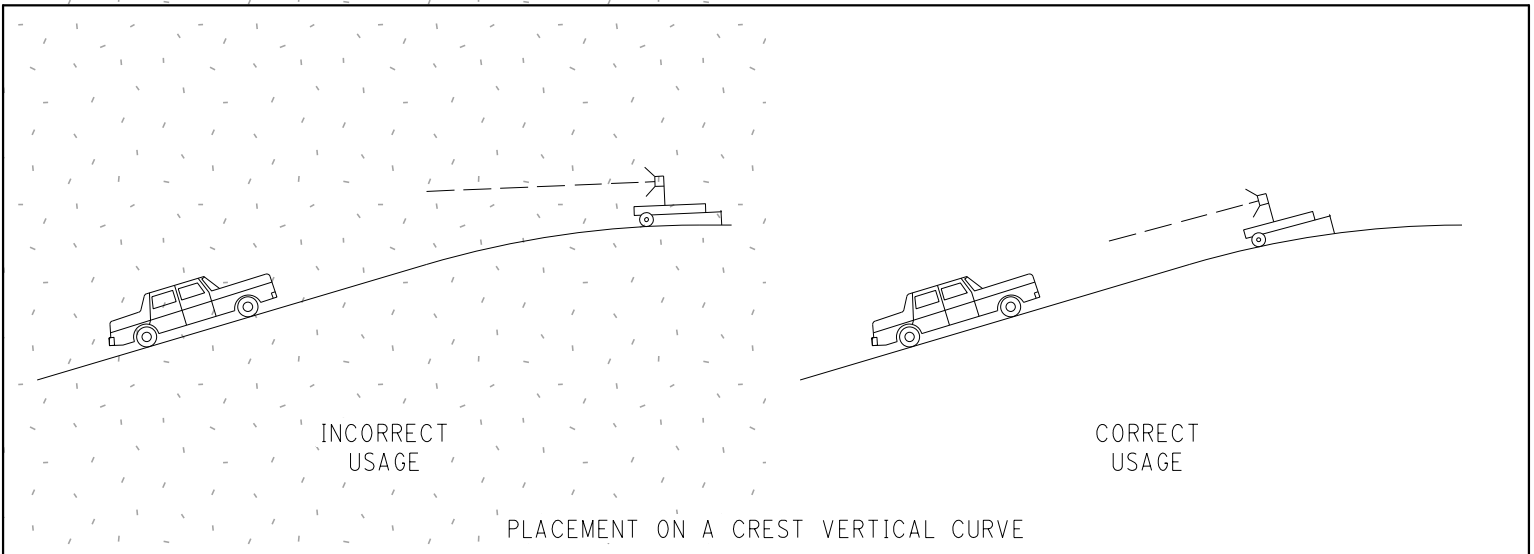
TRAFFIC TYPICAL  
SIGN SHEET

DATE:  
JUNE 2021

SHEET:

5 OF 5

FILE: 103-GEN-SIGN.dgn










**NOTE:**

ENSURE THE ARROW REMAINS CLEARLY LEGIBLE AT DISTANCES FROM 2,500 FEET TO 200 FEET, FROM ALL TRAFFIC LANES AND ROADWAY ENTRANCES. DO NOT PLACE THE LIGHTED ARROW ON A HORIZONTAL OR VERTICAL CURVE THAT MIGHT INTERFERE WITH THIS LEGIBILITY REQUIREMENT.

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	<b>USE OF ARROW BOARD ON HILL OR CURVE AND WORK ZONE LAYOUT</b>	DATE: MAY 2021
		NO: 104-GEN-AB		SHEET: 1 OF 1

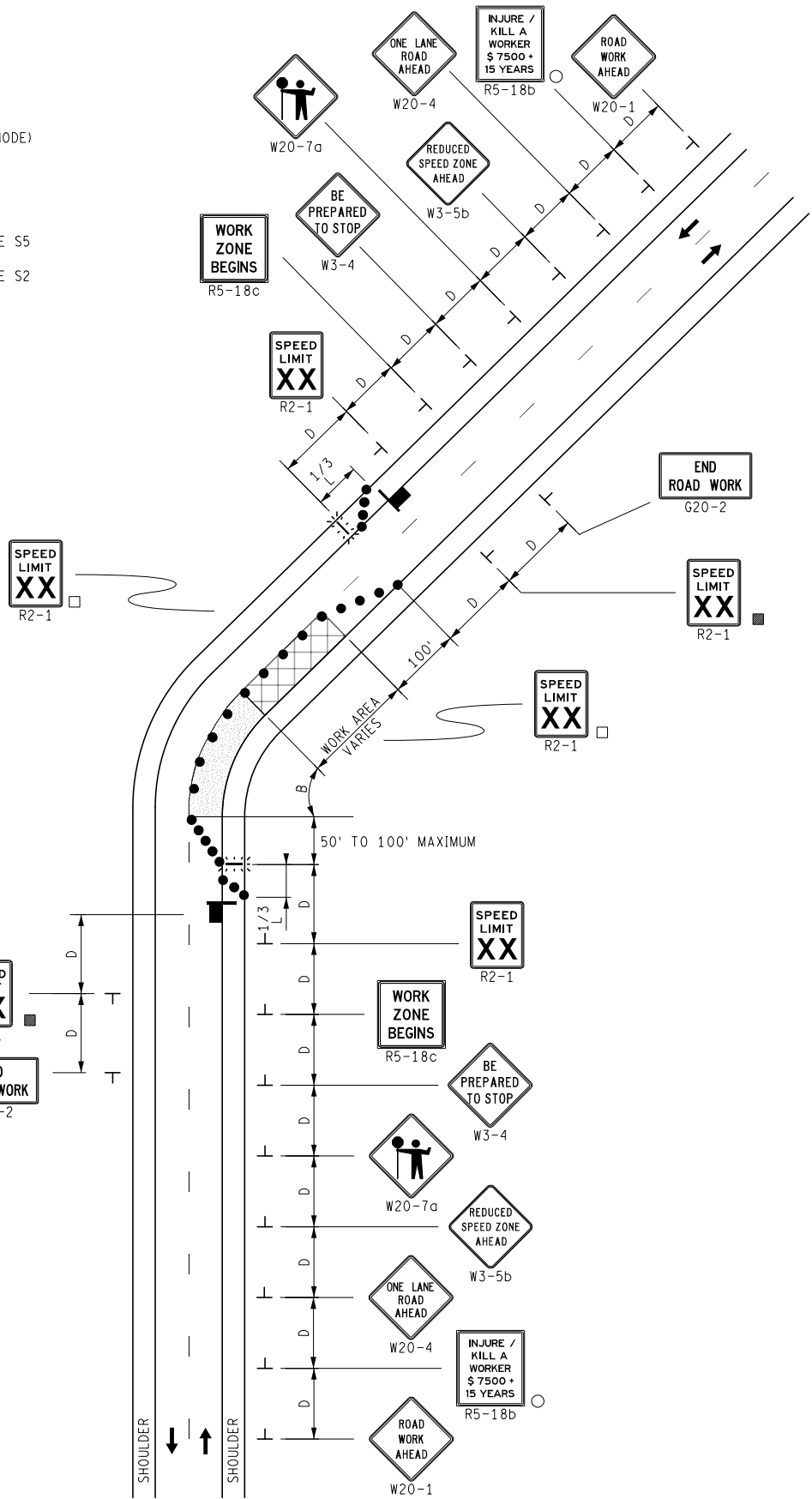
# KEY

-  TRAFFIC REGULATOR
-  CHANNELIZING DEVICES
-  LIGHTED ARROW PANEL (CAUTION MODE)
-  TRAFFIC FLOW
-  REFLECTS EXISTING SPEED LIMIT
-  PLACE SIGN AS INDICATED IN NOTE S5
-  PLACE SIGN AS INDICATED IN NOTE S2

## STANDARD NOTES

(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S4, S5  
 TRAF REG: TR1, TR2  
 DEVICES: TCD1, TCD2, TCD6



	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	<b>LANE CLOSURE</b> UTILIZING TRAFFIC REGULATORS ON A 2-LANE UNDIVIDED ROADWAY	DATE: MAY 2021
		NO: <b>110-TR-NFW-2L</b>		SHEET: 1 OF 1

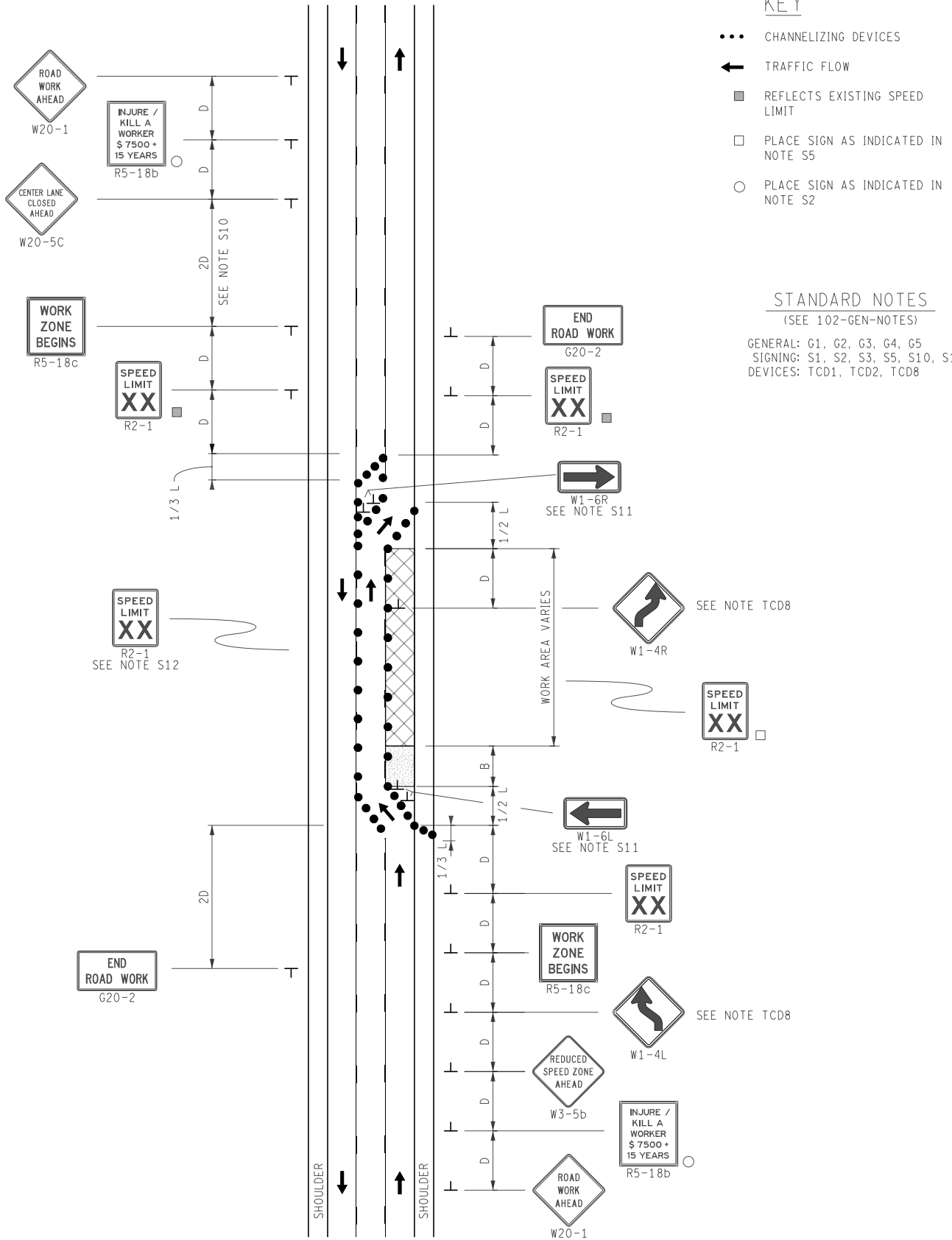
FILE: 110-TR-NFW-2L.dgn

### KEY

- CHANNELIZING DEVICES
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

### STANDARD NOTES

(SEE 102-GEN-NOTES)  
 GENERAL: G1, G2, G3, G4, G5  
 SIGNING: S1, S2, S3, S5, S10, S11, S12  
 DEVICES: TCD1, TCD2, TCD8



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:  
**137-CLT-SHIFT-0LC**

**LANE SHIFT  
 ON A 3-LANE UNDIVIDED ROADWAY**

DATE:  
 DECEMBER 2021  
 SHEET:

FILE: 137-CLT-SHIFT-0LC.dgn

1 OF 1

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
MINOR TRAFFIC CONTROL

SDA:DAD

1 of 4

02/23/23

**a. Description.** This work consists of protecting and maintaining vehicular and pedestrian traffic, in accordance with the sections 104.11 and 812 of the of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction; Part 6 of the 2011 Edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD); as directed by the Engineer, and as described herein.

The work includes, but is not limited to the following:

- The furnishing and operating of miscellaneous signs, warning devices, flags, and cones;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags;
- Coordinating with Republic Parking System to have meter bags installed and removed;
- Maintaining pedestrian traffic;
- Temporarily covering/uncovering traffic controls as directed;
- Temporarily covering/uncovering existing signs as directed;
- Any/all other miscellaneous and/or incidental items that are necessary to perform the work properly.

**b. Materials.** Provide materials and equipment meeting the requirements specified in section 812 of the MDOT Standard Specifications for Construction.

**c. Construction.** Perform the work required by this detailed specification throughout the life of the Contract.

Maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair place, Pedestrian Type II Barricade, Temp, Pedestrian Type II Channelizer, Temp, "Sidewalk Closed" and/or "Cross Here" signs at locations directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor will remain the property of the Contractor. The City is not responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. Replace missing or damaged traffic control devices immediately. Preserve, protect, and maintain all existing signs, and signs erected by the City of Ann Arbor on this project. At the direction of the Engineer, City forces will repair or replace any existing City owned signs damaged by the Contractor during the work. Repair/replacement of other signs damaged by the Contractor will be its responsibility to perform in a timely manner.

Temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

The City will enforce parking violation citations issued to the Contractor, subcontractor, and material suppliers including each of their respective employees under appropriate City Code.

Where there is metered parking within the influence of project work, the Contractor will coordinate with Republic Parking System to have meter bags temporarily installed prior to commencing with any work, and removed when the work is complete.

Maintain vehicular and pedestrian traffic during the work by the use of traffic regulators, channelizing devices and signs as necessary, and as directed by the Engineer, and in accordance with 2011 Edition of the MMUTCD. This detailed specification includes typical applications for maintaining pedestrian traffic in accordance with the 2011 Edition of the MMUTCD.

In order to maintain areas of on street parking available for residents, the Engineer may direct the contractor to cover and uncover temporary "No Parking" signs within the project limits multiple times throughout the course of the project.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Minor Traffic Control, Max \$ _____	Lump Sum

Measure **Minor Traffic Control, Max \$ \_\_\_\_\_** by the unit lump sum and pay for it at the contract unit price, which price includes costs for all labor, equipment and materials necessary to complete the work. The contract unit price also includes payment for any/all costs related to any temporary traffic control devices directed for use by the Engineer where there is no specific pay item in the Contract, for repeated covering and uncovering of signs, and maintaining pedestrian traffic.

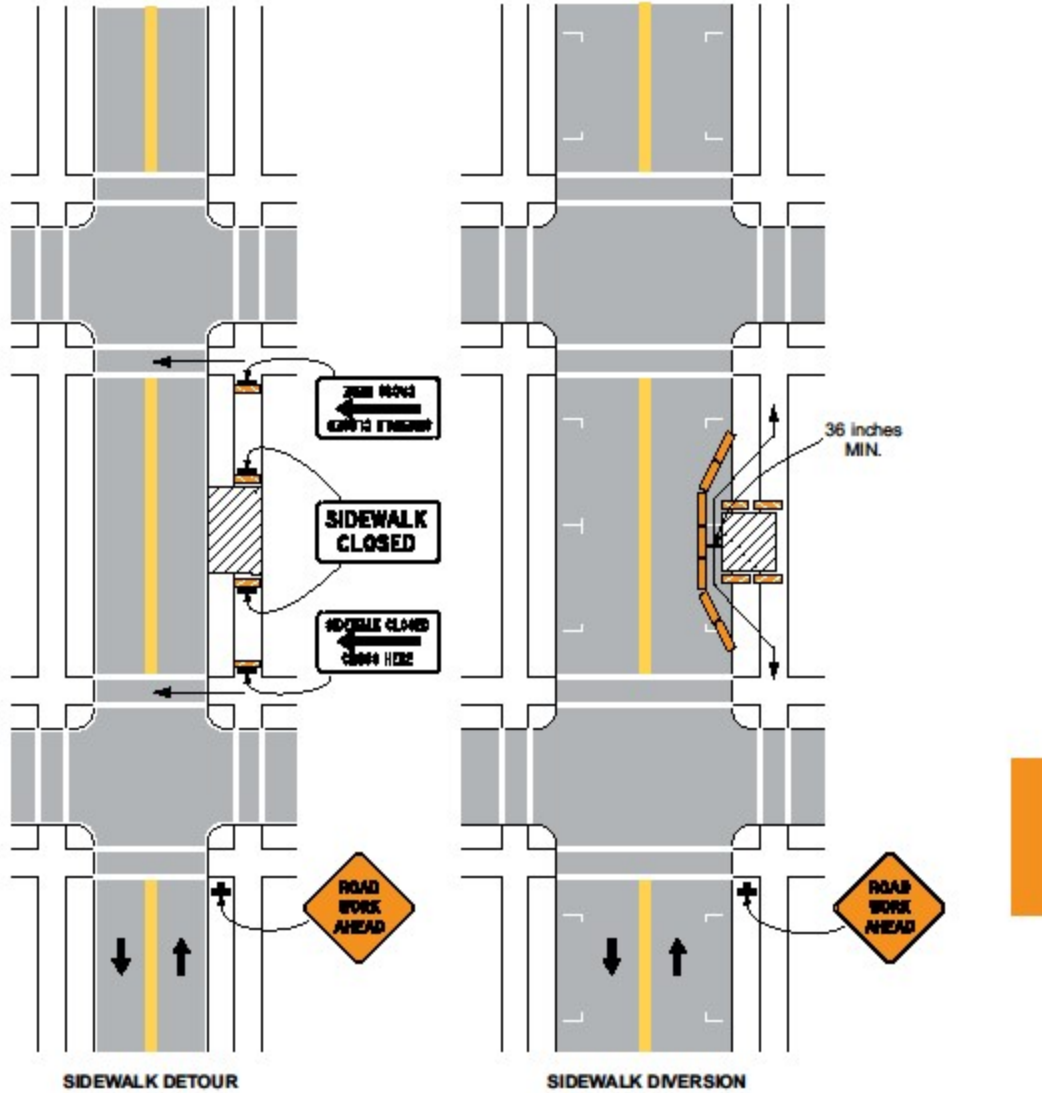
Include any/all costs for transporting temporary traffic control devices required by this detailed specification, or where there is no separate pay item in the contract, in the unit price for **Minor Traffic Control, Max \$ \_\_\_\_\_**.

The Contractor is solely responsible for any/all repair and/or replacement costs associated with damage to existing signs caused by its construction activities and/or operations.

Measurement will be on a pro rata basis at the time of each progress payment, and based on the ratio of work completed during the payment period and the total contract amount. When all of the work of this Contract is complete, the measurement of this item shall be 1.0 Lump Sum, less any deductions incurred for inadequate performance as described herein. This amount will not increase for any reason, including extensions of time, extras, and/or additional work.



Figure 6H-28. Sidewalk Detour or Diversion (TA-28)

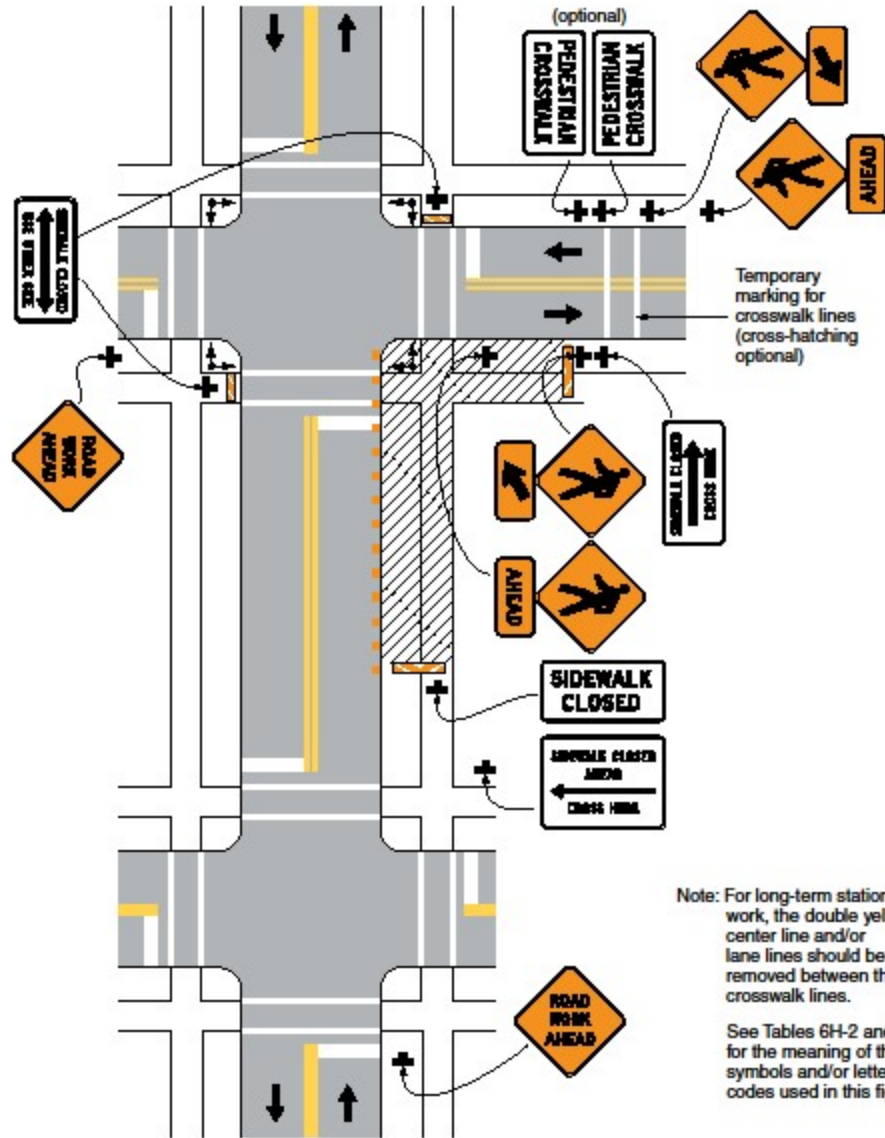


Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.



Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)



Typical Application 29

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**ROCKERY WALL, INSTALL SALV**

SDA:DAD

1 of 3

04/04/23

**a. Description.** This work includes the installation of salvaged portions of rockery walls to transition and tie-in these types of existing walls with new retaining walls. Perform this work in accordance with the details in the Contract Drawings, as specified herein, and as directed by the Engineer. Rockery walls covered under this specification shall not exceed 48-inches in height.

**b. Materials.** Provide aggregate material meeting the requirements aggregate as specified in section 902 of the MDOT 2020 Standard Specifications for Construction. The ONLY permitted material shall be crushed limestone unless otherwise approved by the Engineer.

Chinking material shall be hard, sound and durable material, free from seams, cracks, and other defects tending to destroy its resistance to weather.

Replace damaged rocks as required with ones of equivalent size and type.

Chinking material shall be a minimum of 4 inches average dimension.

Provide geotextile fabric meeting the requirements for a non-woven geotextile separator as specified in section 910 of the MDOT 2020 Standard Specifications for Construction.

**c. Construction.** Use construction methods as described in subsection 204.03.E of the MDOT Standard Specifications for Construction, and as directed by the Engineer.

Construct aggregate base course in accordance with subsection 302.03 of the 2012 MDOT Standard Specifications for Construction. Deliver Class 21AA dense-graded aggregate to the job site in a thoroughly blended condition and handle in such a manner that there will be no mixing of underlying soil with the base aggregate.

If the property Owner indicates, before the start of construction, that they want to keep the existing boulders removed for the work, the Contractor shall remove and stockpile the boulders on the Owner's property in the location indicated by the owner. Otherwise, removed or excavated materials not incorporated into the work will become the property of the Contractor and be immediately removed and properly disposed of off-site. DO NOT stockpile overnight on site, or adjacent to it, any removed or excavated materials.

The Contractor shall restrict the excavation limits to the length of rock wall that can be constructed in one day's work. The Engineer may permit excavation beyond the limits that can be completed in one day's Work provided the Contractor either demonstrates that the excavation will remain stable until the rock wall is completed, or shores the excavation.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Prior to rock placement, the foundation, shall be compacted as approved by the Engineer. Any foundation soils found to be unsuitable shall be removed and replaced to the satisfaction of the Engineer.

Base course rocks shall have full contact with the foundation soils. If necessary, the excavation shall be shaped to fit the rocks. Rocks may be dropped to shape the ground provided the rocks do not crack. Cracked rocks shall be replaced and the foundation regraded to fit the replacement rock.

Wall batter shall be 6:1 or flatter as specified in the Drawings.

The maximum void between adjacent main rocks shall be 6 inches as measured at the smallest dimensions of the void within the thickness of the wall. Where voids larger than 6 inches are present, chinking rock shall be keyed between the rocks to fill the void.

Rocks shall be placed so there are no continuous joint planes in either the vertical or lateral direction.

Where possible, rocks shall be placed so that the rock shall bear on at least two rocks below it. Rocks shall be oriented so that flat surface contact points between adjacent rocks are maximized. Point-to-point contact between adjacent rocks shall be minimized. Each rock in a course shall be arranged so that the natural irregularities in the rocks key the rocks together and so that the courses are keyed together.

Base rocks shall be sized as "three man" (approximately 700-1500 pounds and 20-36 inch nominal diameter and top course rocks shall be sized as "two man" (approximately 200- 700 pounds and 14-22 inch nominal diameter) or greater. Rocks shall increase in size from the top of the wall to the bottom at a uniform rate.

Smaller rocks may be intermittently used for "structural chinking" which allows large rocks to rest in a stable movement free position. Void spaces between larger rocks shall be tightly filled or "aesthetically chinked" such that large gaps between rocks in the exposed face are reasonably well filled. There shall be no loose rocks or aggregate present at any point in the exposed face or top of the rockery wall.

Backfill for the rock wall shall be placed behind each course and tamped to provide a stable condition prior to placing rocks for the next successive course.

At the ends of the rockery wall, match existing walls or taper over a minimum distance of 8 feet. Adjust existing wall as necessary to create a smooth transition. All work to construct a transition within the existing wall shall be incidental.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit prices using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Rockery Wall, Install Salv .....	Square Yard

Measure **Rockery Wall, Install Salv** area in place by the unit square yard and pay for it at the contract unit price, which price includes the costs for all labor, equipment, and materials

necessary to complete the work. All aggregate materials and geotextile fabric required to construct the walls shall be incidental to the Rockery Wall Pay Item.

CITY OF ANN ARBOR  
DETAILED SPECIFICATION  
FOR  
**TURF ESTABLISHMENT, PERFORMANCE**

SDA:DAD

1 of 5

03/14/23

**a. Description.** For the work identified in this special provision paid for by the pay item Turf Establishment, Performance only, delete section 816 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and replace it with this special provision. The Contractor is responsible for the performance and quality of turf growth in the areas shown on the plans and as identified by the Engineer. Comply with all local, state and federal laws when completing this work.

Establish a durable, permanent, mature, perennial turf. The work consists of fundamental turf work, including but not limited to topsoiling, seeding, mulching, erosion control, maintenance, watering and repair of turf as described herein during the life of the contract and during the life of any supplemental performance bond which may ensue.

Choose and implement proven turf establishment industry practices; provide all necessary labor and equipment; select and provide all turf establishment materials; and control erosion and any subsequent sedimentation at all times.

Perform a site analysis, interpret the results and implement a turf establishment program to ensure compliance with this specification. The site analysis must take into consideration topsoil needs, fertilizer and pH requirements, seed mix, existing and future soil moisture levels, slopes and grades, required erosion control items and devices, maintenance requirements, local highway snow removal and deicing practices, and any other characteristics that influence and affect turf establishment.

Subsection 107.11 of the MDOT 2020 Standard Specifications for Construction is revised relative to the Contractor's responsibility for the repair of turf establishment work as follows. The Contractor is responsible, at no additional cost to the contract, for the repair of turf establishment work occasioned by storm events of up to 3 inches of rain in a 24 hour period as documented by local meteorological data submitted to the Engineer for review and approval. All other portions of subsection 107.11 remain unchanged.

1. Contractor Turf Establishment Experience Requirements. Ensure weed control is done by a commercial herbicide applicator, licensed by the State of Michigan and certified by the Michigan Department of Agriculture & Rural Development (MDARD) in the appropriate category to apply herbicides. Use application procedures and materials in accordance with federal, state and local regulations. Use of restricted use chemicals is prohibited. Provide appropriate documentation and secure approval from the Engineer before application of herbicides.

At least 10 working days prior to start of turf establishment, provide documentation to the Engineer, from the Contractor performing the turf establishment work, that they meet one or both of the following requirements.

2. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has a degree or certificate in Turf Management, Horticulture, or related field.

3. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has at least 5 years of experience in roadside turf establishment.

**b. Materials.** Provide topsoil, seed, mulch, pesticide, herbicide, mulch blankets and any other unique erosion control materials as necessary to fulfill this specification, as shown on the plans. Use additional materials, as necessary, to meet the standards set forth for turf establishment in this special provision. The use of sod on the project requires the prior approval of the Engineer and if approved, may be used at limited site locations only.

Selection of all materials is the responsibility of the Contractor with the following minimum conditions.

1. Soil. Provide furnished or salvaged topsoil, which may be blended compost, that will support vigorous growth. Ensure topsoil is humus bearing and placed at least 4 inches deep. Ensure it is free of stones larger than 1/2 inch (2 inches on freeway projects) in diameter and other debris. Trim and grade the finished slope in accordance with subsection 205.03.N of the MDOT 2020 Standard Specifications for Construction.

2. Seed. Use a seeding mixture that is composed of four or more species of perennial grass. Use only species and their cultivars or varieties which are guaranteed hardy for Michigan.

Recommended species of perennial grasses include Kentucky Bluegrass, Perennial Ryegrass, Hard Fescue, Creeping Red Fescue, Chewings Fescue, Turf-type Tall Fescue, Buffalo grass, and Alkaligrass-Fults Puccinellia distans. Select cultivars or varieties of grasses that are disease and insect resistant and of good color. Ensure that no one species in the mix is less than 5 percent, or more than 25 percent, of the mixture by weight. Do not select grass species considered noxious or objectionable, such as Quack Grass, Smooth Brome, Orchard Grass, Reed Canary Grass and others.

3. Ensure the seed is legally saleable in Michigan. Ensure the seed product does not contain more than 10 percent inert materials. Ensure the seed source is an MDOT approved certified vender.

4. Adapt the species and varieties of seed to the site conditions, to the site use, and to the soils, moisture and local climate. Site use may include, but is not limited to, detention pond, wildlife habitat, playground, wetlands, forested wetland, rural roadside, urban roadside and highly maintained front yard.

5. Ensure at least two of the species in the mixture proposed to be planted within 15 feet behind the curb or the shoulder are salt tolerant.

6. Mulch. Mulch seeded areas with the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation.

7. Herbicides. Comply with all federal, state and local laws. As part of the MDARD weed control application, the Contractor is required to make proper notifications and/or postings in accordance with the label and MDARD requirements for all locations that will be sprayed. Notify the Engineer at least 48 hours prior to any applications being made. Furnish

and apply herbicide(s) as needed. It is the Contractor's responsibility to select the herbicide(s) and the rate at which it is used. Obtain the Engineer's approval of work methods and herbicide(s) selected prior to the application of the herbicide(s). Complete a spray log and submit to the Engineer each day an application is made.

Do not draw water from any waterway (i.e. river, ditch, creek, lake etc.) located on state, county or municipal right-of-way, for mixing with herbicides.

8. Fertilizers. Furnish and apply fertilizer(s) as needed. It is the Contractor's responsibility to select the fertilizer(s) and the rate at which it is used. Phosphorus is allowed for use only at the time of planting and when required by soil conditions. Obtain the Engineer's approval of work methods and fertilizer(s) prior to the application of the fertilizer(s).

9. Water. Furnish and apply water from an approved source at a rate to promote healthy growth.

**c. Construction.** The Contractor is responsible for all work and all construction methods used in completing this work. Implementation of any part of the MDOT 2020 Standard Specifications for Construction, Standard Plans or Special Details by the Contractor does not relieve the Contractor of responsibility for acceptability of the construction methods or for the quality of the work.

1. Inspection of the Work. The Contractor is responsible for all inspection of turf establishment work.

Use a Contractor's Daily Report, approved by the Engineer, to report inspections made and to document turf establishment work performed on this project. Complete and submit a Contractor's Daily Report to the Engineer when any work performed under this special provision is in progress.

Include all necessary materials documentation including tests slips, certifications, etc. with the associated Contractor's Daily Report.

The Engineer will determine the acceptability of the Contractor's Daily Report in terms of their completeness and accuracy. The Engineer reserves the right to verify all submitted measurements and computations. Failure by the Contractor to submit acceptable and timely reports to the Engineer may result in withholding of progress pay estimates on turf-related items until such time as reports are submitted and deemed acceptable.

The Engineer reserves the right to inspect the project for any reason in accordance with subsection 104.01 of the MDOT 2020 Standard Specifications for Construction, including the fulfillment of other inspection requirements such as Soil Erosion and Sedimentation Control, NPDES, etc. Inspections made by the Engineer do not relieve the Contractor of the responsibility for inspections required by this special provision or the Contractor's responsibilities for erosion control and turf establishment.

2. Erosion Control. Control erosion at all times in accordance with section 208 of the MDOT 2020 Standard Specifications for Construction. Control of soil erosion is the responsibility of the Contractor. However, ensure sedimentation controls are placed as shown on the plans or as directed by the Engineer. Continuously monitor the site for needed erosion repair from any cause as addressed in the contract. Return all eroded areas to

original grade as detailed in the contract.

Take immediate corrective action if sedimentation occurs in drainage structures or any watercourse or water containment area and stabilize all disturbed areas contributing to this sedimentation within 24 hours after the erosion occurrence. Remove sediment deposited as a result of the Contractor's inability to control the soil erosion at the Contractor's expense.

Reimburse the Department for any costs levied against the Department, such as fines, environmental costs, costs for remedies required, or any other costs as a result of the Contractor's failure to comply with this special provision and with federal, state and local laws.

3. Erosion Repair. The Contractor is responsible for all repairs and liable for all consequences (legal, monetary or other) associated with erosion or sedimentation damage to finished or unfinished work.

Report all erosion occurrences and the repairs made by the Contractor to the Engineer in the format and at the frequency required by the Engineer. Repair any erosion, displacement or disturbance to ongoing or completed work by any cause at no additional cost to the contract unless otherwise noted herein.

The Contractor is responsible and liable for all traffic control and safety measures required to repair and protect damaged turf areas. Repair any eroded area that may affect the support of the roadbed or safety of the public within 24 hours of the erosion occurrence.

Place protective devices such as barriers, directional signs/signals, temporary fence, or any other safety measures immediately after any erosion damage occurs that has the potential of endangering the public. In these instances, provide the Engineer with a written summary of the immediate action taken describing the repairs made and the safety measures taken, within 24 hours of the occurrence of the damage.

4. Mowing and Weeding. Maintain turf to a visually appealing level, and not more than 8 inches in height at any time, prior to acceptance. Weeds must be controlled to less than 10 percent of the turf establishment area at all times during construction.

5. Final Acceptance and Supplemental Performance Bond.

6. Final Acceptance Parameters. Ensure before final acceptance of the turf establishment work, all of the following minimum parameters are met throughout all exposed areas of the project designated on the plans or identified by the Engineer as turf establishment areas: there must be no exposed bare soil and the turf must be fully germinated, erosion free, weeds less than 10 percent, disease free, dark green in color and in a vigorous growing condition.

The Engineer will notify the Contractor of the dates and times of all acceptance inspections. The Contractor may accompany the Engineer during these inspections. If the Contractor does not agree with the decision made by the Engineer, the Contractor may request an inspection by a mutually agreed upon third party (Michigan State University Extension service or other). A joint inspection, to include the Engineer, the Contractor, and the third party, will be scheduled by the Engineer. Pay all expert fees and expenses charged by the third party.



7. Supplemental Performance Bond. In the event that all contract items of work are completed, including the placement of all turf establishment items of work, and the final acceptance of the project is delayed because the final acceptance parameters for the turf establishment work have not been fully met; the Contractor may propose to the Engineer the use of a supplemental performance bond.

The bond serves to secure the successful completion of turf establishment work and fulfillment of all final acceptance parameters for the turf establishment work. Ensure the supplemental performance bond, in all respects, is satisfactory and acceptable to the Department and executed by a surety company authorized to do business with the State of Michigan.

Ensure the bond is in an amount equal to 50 percent of the turf establishment work items covered by this special provision. Ensure the bond remains in place for two growing seasons. At the discretion of the Engineer, the bond may be reduced on a prorated basis as portions of the areas designated for turf establishment on the project meet the final acceptance parameters.

**d. Measurement and Payment.** Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Turf Establishment, Performance .....	Square Yard

Measure **Turf Establishment, Performance** area in place by the unit square yard and pay for them at the contract unit price, which prices include the costs for all labor, equipment and materials to complete the work. It also includes installing, maintaining, inspecting, repairing and meeting the acceptance parameters for turf establishment specified in this detailed specification together with preparation, updating and submittal of the Contractor’s Daily Reports.

Repairs made to damaged turf establishment areas as a result of a documented storm by local meteorological data resulting in rainfall amounts of more than 3 inches in a 24-hour period will be paid for as an increase to original quantities in accordance with subsection 109.05 of the MDOT 2020 Standard Specifications for Construction.

The following schedule of payment applies to work performed in accordance with this special provision. Upon completion of topsoil surfacing stage, 50 percent of the authorized amount for **Turf Establishment, Performance** will be paid to the Contractor. The remaining 50 percent of the authorized amount will be paid upon completion of all other work necessary to comply with this special provision and to meet all final acceptance parameters for **Turf Establishment, Performance** or at such time as the supplemental performance bond is accepted by the Department.

The supplemental performance bond and all costs associated with turf establishment work performed during the duration of the performance bond will not be paid for separately. These costs which may include, but are not limited to, mobilization, traffic control devices, and the required permit insurance are included in the unit price bid for **Turf Establishment, Performance**.

## **APPENDIX**

- Notice(s) to Bidders
- Michigan Department of Transportation (MDOT) Special Provisions
  - MDOT Supplemental Specifications
  - MDOT Standard Plans/Special Details
- City of Ann Arbor Standard Plans/Special Details

CITY OF ANN ARBOR  
**NOTICE TO PROPOSERS**  
**UTILITY COORDINATION**

SDA:JAB/DAD

1 of 1

02/23/23

The contractor will cooperate and coordinate construction activities with the owners of utilities as stated in section 104.08 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in section 107.12 of the MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon section 109.05.E of the MDOT Standard Specifications for Construction except that no additional compensation will be paid to the Contractor, and no adjustments to Contract unit prices will be made for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.

For protection of underground utilities and in conformance with Public Act 174 of 2013, the contractor shall dial 800-482-7171 or 811 a minimum of three (3) full working days, excluding Saturdays, Sundays, and holidays prior to beginning construction in areas where utilities have not been previously located. The "Miss Dig" alert system will then routinely notify members to locate and mark their facilities. This, however, does not relieve the Contractor of the responsibility of notifying utility owners that may not be a part of the system.

There is no requirement for utility owners to move their facilities on or from within the street right-of-way if those facilities do not interfere with the proposed project work and they do not present a hazard to the public or an extraordinary hazard to the Contractor's operations.

The City will not require utility owners to move additional poles or structures in order to facilitate the operation of construction equipment unless the Engineer determines that such poles or structures constitute a hazard to the public or are dangerous to the Contractor's operations.

Utility owners will complete any/all necessary relocations prior to construction.

Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

The following utility Owners, and others not listed specifically, may have overhead and/or underground facilities located within the Right-of-Way/Public Easements:

- The City of Ann Arbor
- University of Michigan (UM)
- Michigan Department of Transportation (MDOT)
- AT&T
- Comcast
- DTE Energy - Detroit Edison Company (Edison)
- DTE Energy - Michigan Consolidated Gas Company (Michcon)
- Fiber Link Inc.
- Light Core (Century Tel)
- MCI Communications
- Windstream Communications

CITY OF ANN ARBOR

**NOTICE TO PROPOSERS**

**QUANTITIES AND UNIT PRICES**

SDA:DAD

1 of 1

02/22/23

Contract Drawings / Plans

Proposers will carefully check and review all drawings, plans, and specifications, and advise the Engineer of any errors or omissions they discover. The drawings/plans may be supplemented by such additional drawings/plans and sketches as may be necessary or desirable as the work progresses. The Contractor will perform all work shown on any additional or supplemental drawings/plans issued by the Engineer.

Proposers will carefully examine the Bid Form, preliminary layouts, specifications, and the work sites until they are satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Quantities and Unit Prices

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities, delete work, or add work, and no adjustment in unit price will be made for any change in any quantity.**

CITY OF ANN ARBOR  
**NOTICE TO PROPOSERS**  
**GEOTECHNICAL DATA**

SDA:DAD

1 of 1

02/22/23

The contract documents include data pertaining to existing soil borings, pavement sections and other geotechnical information to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any and all conclusions it may draw from the data.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**NON-COMPLIANCE WITH SOIL EROSION AND SEDIMENTATION CONTROL  
REQUIREMENTS**

COS:DMG

1 of 2

APPR:TWK:HLZ:02-26-20  
FHWA:APPR:03-02-20

**a. Description.** This special provision establishes negative adjustments related to the failure to properly install and maintain soil erosion and sedimentation control (SESC) measures and the conditions under which these adjustments will be determined and applied. Nothing in this special provision modifies section 107 of the Standard Specifications for Construction.

Delays to the project as a result of the Contractor conducting corrective actions for SESC measures do not constitute a valid reason for an extension of time.

Ensure deficiencies with SESC measures are corrected in the time frame stated herein. For those deficiencies not corrected within the stated time frame, the Engineer will make a negative adjustment to the contract as stated herein.

**b. Materials.** None specified.

**c. Construction.** Install all temporary erosion control measures identified on the plans and as directed by the Engineer for an impacted area of the project prior to the start of any earth disturbance including, but not limited to, clearing, grading and excavation in that area. The Engineer will inspect these measures every 7 days and within 24 hours after a precipitation event that results in a discharge from the site. Deficiencies will be documented on the National Pollutant Discharge Elimination System and SESC Inspection Report (MDOT Form 1126).

If at any time during the project, including the time during the seasonal suspension, the Engineer documents deficient SESC measures, the Engineer will provide written notification with instructions for corrective action to the Contractor. The time frame for completion of these corrective actions will be specified in the notification and will be discussed with the Contractor as necessary.

Deficiencies are defined as one or more of the following:

1. Failure to install or construct SESC measures shown on the plans or as directed by the Engineer;
2. Failure to maintain the measures;
3. Failure to conduct earth change activities in a manner consistent with all applicable environmental permit requirements;
4. Failure to comply with the area limitations or the time limitations stated in subsections 208.03.A and 208.03.B, respectively, of the Standard Specifications for Construction.

SESC deficiencies are either emergency or non-emergency and the time frame for corrective action is determined accordingly. Sediment leaving the right-of-way or entering a drainage structure, waters of the state, or loss of support of the roadbed impacting public safety constitutes an emergency and corrective actions must be completed within 24 hours of notification, including weekends or holidays regardless of whether the Contractor is working or not. Non-emergency deficiencies must be corrected within 5 calendar days of notification.

For those emergency corrective actions not completed within 24 hours of notification, the Contractor will be assessed \$100.00 per hour for every hour the deficiency remains uncorrected after the initial 24 hours of notification. For those non-emergency corrective actions not completed within 5 calendar days, the Contractor will be assessed \$500.00 per day for every day, or part thereof, the deficiency remains uncorrected after the initial 5 days of notification.

If it is not practicable to complete the non-emergency corrective actions within 5 calendar days, the Contractor must document the reasons and propose a corrective action plan to the Engineer within 5 days of notification. The corrective action plan must contain the Contractor's course of action and a time frame for completion. If the reasons and the corrective action plan are acceptable to the Engineer, the Contractor will be allowed to proceed with the plan as proposed without incurring a negative adjustment. If the approved corrective action plan is not completed as proposed, the Contractor will be assessed \$1000.00 per calendar day for every day, or part thereof, the deficiency remains uncorrected after the time frame is exceeded in the approved corrective action plan.

Correct, in the timeframe stated herein, all other emergency or non-emergency SESC deficiencies documented anywhere else on the project during completion of the approved corrective action plan.

**d. Measurement and Payment.** The Engineer will make the necessary monetary adjustment to the contract amount based on the length of time the Contractor allows the deficiencies to remain uncorrected after the time allowance stated herein and as described to cover any costs incurred by the Department as a result of SESC violations.

All costs associated with corrective actions required due to the Contractor's failure to properly install or maintain SESC measures on this project will be borne by the Contractor.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION  
  
SPECIAL PROVISION  
FOR  
**WORK ZONE SIGNING ON LOCAL AGENCY PROJECTS**

OFS:MWB

1 of 3

APPR:CRB:AJU:04-02-20  
FHWA:APPR:04-03-20

**a. Description.** In addition to all other maintaining traffic signs required on this project, place work zone signing in accordance with the MDOT Traffic and Safety Maintaining Traffic Typical(s) contained in the proposal, except as modified herein.

On all "Advance Signing Treatment..." Maintaining Traffic Typicals (M0030 - M0080):

Replace the R5-18b sign "INJURE/KILL A WORKER \$7500 + 15 YEARS" sign with the R5-18bLA "INJURE/KILL A WORKER // FINE - \$ 7500 // JAIL - 15 YRS" sign, as detailed in the attached graphics.

Delete the R5-18 "TRAFFIC FINES DOUBLED IN WORK ZONES" sign or the R5-18a "TO PROTECT HIGHWAY WORKERS FINES DOUBLED IN WORK ZONES" sign, along with the prescribed 'D' spacing distance.

On all other "Typical Temporary Traffic Control..." Maintaining Traffic Typicals (M0110 et. al.):

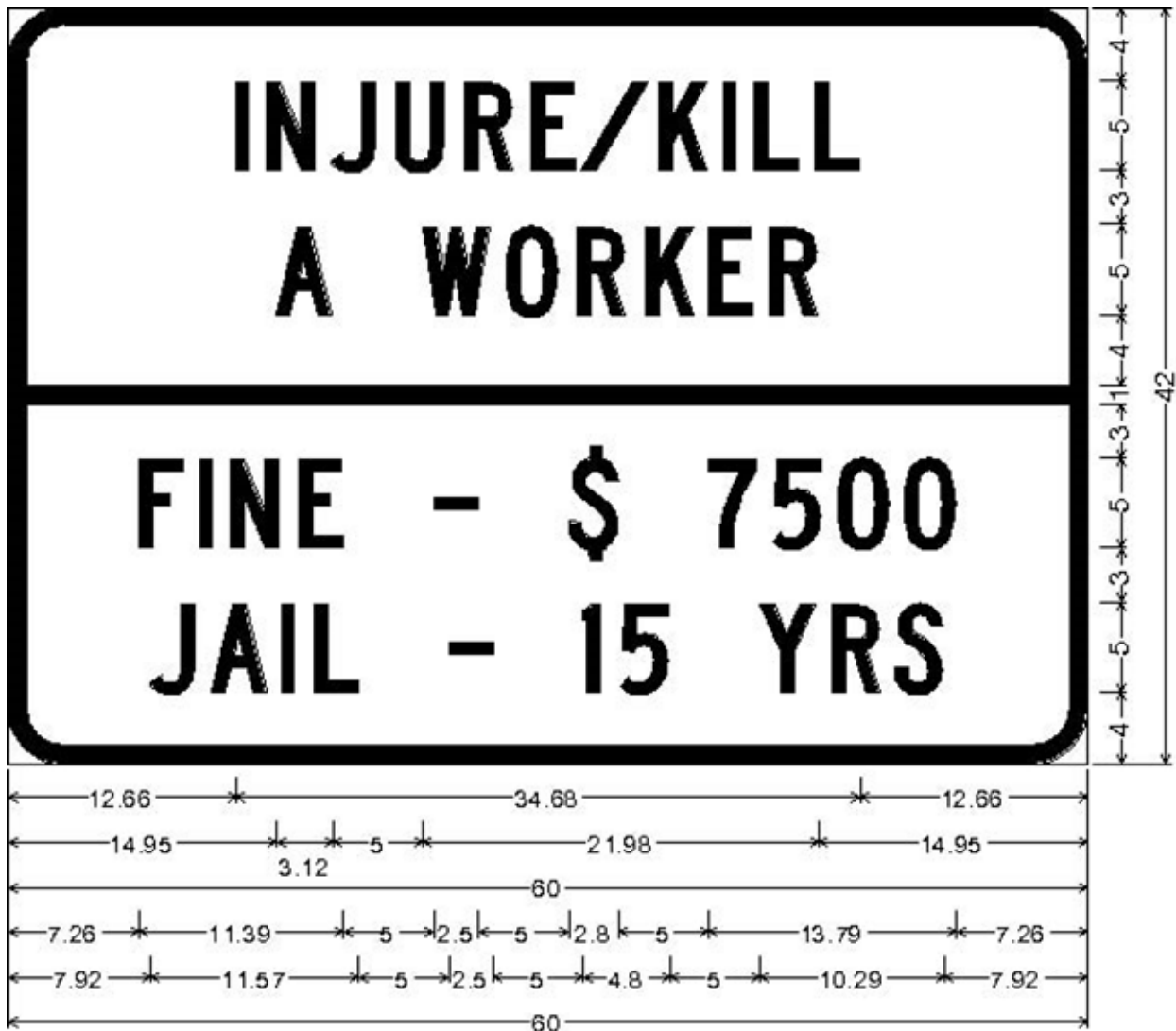
Replace the R5-18c "WORK ZONE BEGINS" sign with the R5-18cLA "WORK ZONE BEGINS // TRAFFIC FINES DOUBLED" sign, as detailed in the attached graphics.

Place the G20-1 "ROAD WORK NEXT \_\_\_ MILES" sign and the G20-2 "END ROAD WORK" sign in accordance with the appropriate MDOT Traffic and Safety Maintaining Traffic Typical.

Place all other work zone signing in accordance with the project plans and specifications, including the appropriate MDOT Traffic and Safety Maintaining Traffic Typicals. Place all work zone signing in accordance with the standard specifications.

**b. Measurement and Payment.** Quantities for Local Agency work zone signs will be included in the plan quantities for the pay items **Sign, Type B, Temp, Furn** and **Sign, Type B, Temp, Oper** or **Sign, Type B, Temp, Prismatic, Furn** and **Sign, Type B, Temp, Prismatic, Oper**. Payment for the signs will be made at the contract unit prices.



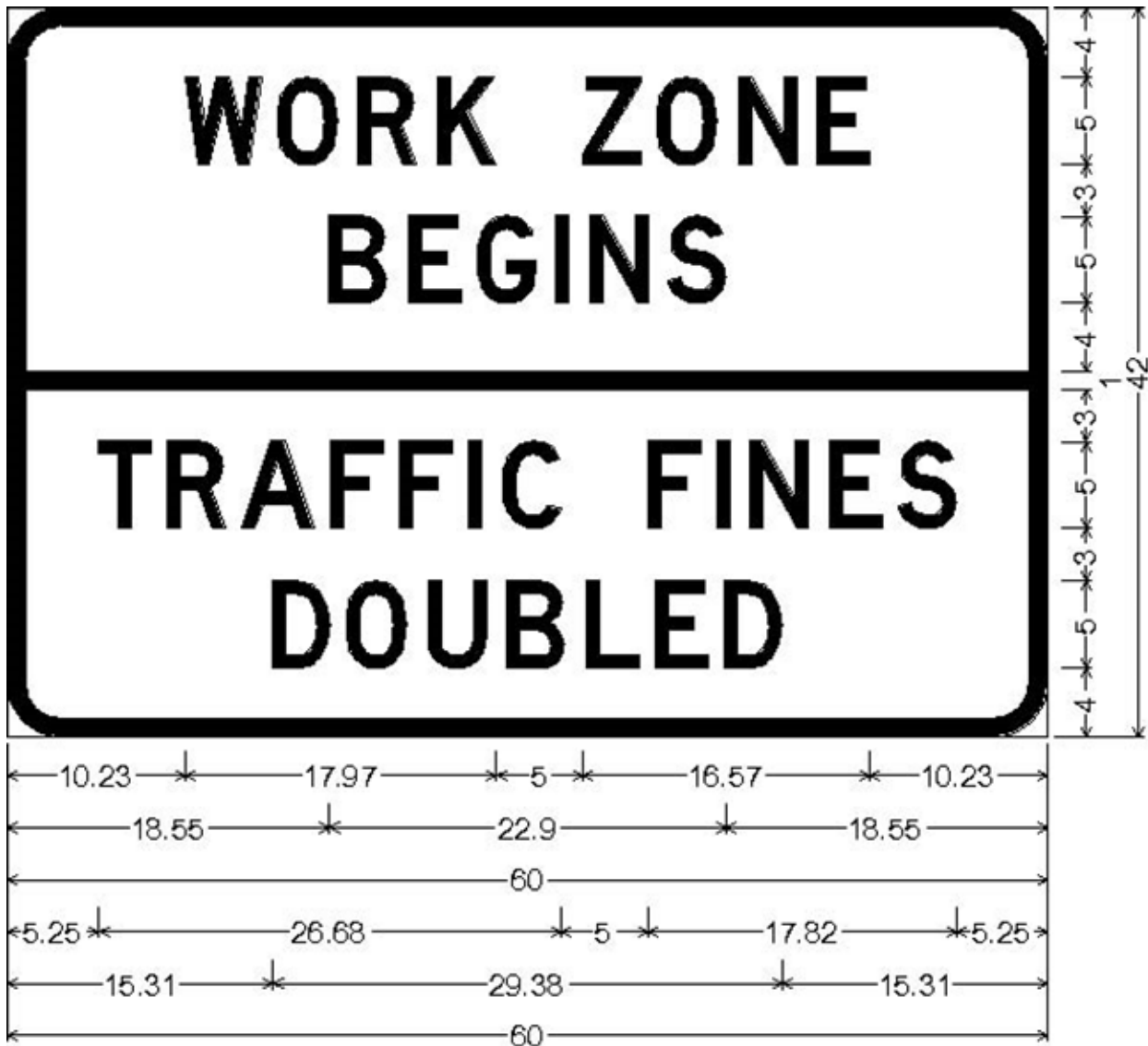


3.00" Radius, 1.00" Border, Black on White;

"INJURE/KILL" C; "A WORKER" C; "FINE - \$ 7500" C; "JAIL - 15 YRS" C;

- All dimensions in inches.
- Not to Scale.

R5-18bLA



3.00" Radius, 1.00" Border, Black on White;

"WORK ZONE" D; "BEGINS" D; "TRAFFIC FINES" D; "DOUBLED" D;

- All dimensions in inches
- Not to scale

R5-18cLA

MICHIGAN  
DEPARTMENT OF TRANSPORTATION  
  
SPECIAL PROVISION  
FOR  
**TEMPORARY PEDESTRIAN TYPE II BARRICADE**

COS:CRB

1 of 2

APPR:CAL:CT:03-01-21  
APPR:FHWA:03-08-21

**a. Description.** This work consists of delivering, installing, maintaining, relocating, and removing a temporary pedestrian Type II barricade section as identified in the proposal or on the plans. Use temporary pedestrian Type II barricades to close non-motorized facilities including sidewalks, bicycle paths, pedestrian paths, and shared use paths that are not part of the roadway. One pedestrian Type II barricade is defined as a barricade section at least 43 inches wide, including all supports, ballast, and hardware.

**b. Materials.** Provide a temporary pedestrian Type II barricade that meets the requirements of *National Cooperative Highway Research Program Report 350 (NCHRP 350)* or *Manual for Assessing Safety Hardware (MASH)*, in addition to meeting the following requirements:

1. Provide barricade sections at least 43 inches wide, designed to interconnect to ensure a continuous accessible tactile barrier. Ensure the connection includes provisions to accommodate non-linear alignment as well as variations in elevation at the installation area.

2. Ensure the top surface of the barricade is designed to function as a hand-trailing edge and has a height between 32 and 38 inches. Ensure the lower edge of the barricade is no more than 2 inches above the surface of the non-motorized facility. Ensure the top edge of the bottom rail of the barricade is a minimum of 8 inches above the surface of the non-motorized facility. The barricade may have a solid continuous face. Finally, all features on the front face of the barricade (the face in contact with pedestrians) must share a common vertical plane.

3. Equip both sides of the barricade with bands of alternating 6-inch wide orange and white vertical stripes of reflective sheeting. Two bands of sheeting 6 inches tall and a minimum of 36 inches long containing at least two orange and two white stripes each are required. One band placed near the top and one near the bottom if the barricade section has a solid face. If the barricade consists of two rails, affix one band of sheeting to each rail. Ensure the stripes of reflective sheeting are aligned vertically. Ensure this sheeting meets or exceeds the requirements of *ASTM D4956, Type IV* sheeting.

**c. Construction.** Construct the temporary pedestrian Type II barricade in accordance with the manufacturer's recommendations, MMUTCD, the plans, and the following requirements:

1. Install the barricade as shown on the plans and as directed by the Engineer. Interconnect all barricade sections using hinge components, if necessary, to ensure a continuous detectable edge for the entire installation. Ensure the barricade is ballasted in accordance with the manufacturer's recommendations to ensure stability during wind events and contact with pedestrians.

2. When the barricade is installed near motor vehicle traffic, ensure reflective sheeting is visible to motorists.

3. When temporary pedestrian Type II barricades are used to close a non-motorized facility, ensure a sufficient number of barricade sections are used to block the entire width of the facility. The barricade may extend outside the edge of the non-motorized facility but must not be less than the full width of the facility.

4. If sections of multiple-colored barriers are used (i.e. safety orange and white) install the sections such that the colors alternate to increase conspicuity.

5. Ensure temporary pedestrian Type II barricades are not used to close a motor vehicle facility. Ensure these barricades are not used to guide pedestrian traffic on a motor vehicle facility in the presence of active traffic. This prohibition includes bicycle/shared use lanes or shoulders in the presence of active traffic.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Pedestrian Type II Barricade, Temp .....	Each

**Pedestrian Type II Barricade, Temp**, includes delivering, installing, maintaining, relocating, and removing one barricade section that is at least 43 inches wide. Additional payment will not be made if wider sections are provided. Payment will be made on delivery for the quantity delivered to the project site, up to planned quantity. Any amount delivered exceeding plan quantity will not be paid unless approved by the Engineer. This includes all rails, supports, ballast, hinge points, reflective sheeting, and miscellaneous hardware needed to install and maintain a barricade section.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
FOR  
**ERRATA TO THE 2020 STANDARD SPECIFICATIONS**

1 of 8

10-31-22

<b>Page</b>	<b>Subsection</b>	<b>Errata</b>
1-06	101.02	Delete the second abbreviation of the list on this page reading: “IES ..... Illuminating Engineering Society
1-06	101.02	Add the abbreviation to the list on this page reading: “IESNA Illuminating Engineering Society of North America
1-83	108.05.A.2	In the first paragraph of this subsection change the language “MDOT Form 1130” to read “MDOT Form 1130A”.
1-88	108.08.D	Move the last paragraph of this subsection to the left one indent to align with the first paragraph of the subsection and not with the subsection 108.08.D.3.
2-29	205.03.P.1	Delete the first sentence of this subsection and replace with the following: “Do not dispose of material, temporarily or permanently, beyond the normal plan fill slope across wetlands or floodplains.”
2-30	205.03.P.2	Delete the first sentence of this subsection and replace with the following: “Do not dispose of material, temporarily or permanently, in wetlands or floodplains.”
2-30	205.03.P.3	Delete the second paragraph of this subsection and replace with the following: “Contact the appropriate regulatory agencies to determine whether an area is a regulated wetland or floodplain before disposing of surplus or unsuitable material in areas outside the right-of-way and not shown on the plans as disposal sites.”
2-30	205.03.P.3	Delete the first sentence of the third paragraph of this subsection and replace with the following: “Immediately move to an upland site any surplus or unsuitable material that was disposed of in portions of wetlands or floodplains not shown on the plans as disposal sites, at no additional cost to the Department.”
2-30	205.03.P.4	Delete the first sentence of this subsection and replace with the following:

“The Department will notify the applicable regulatory agencies if the Department becomes aware that the Contractor disposed of surplus or unsuitable material in portions of a wetland or floodplain not shown on the plans.”

- |      |            |   |
|------|------------|---|
| 3-31 | 308.04.D   | Change the subsection title from “D. <b>General.</b> ” to read “A. <b>General.</b> ”  |
| 4-7  | 401.03.E   | Delete the third sentence of the second paragraph of this subsection and replace with the following:<br>“Use precast or cast-in-place footings for precast end sections as required.”   |
| 4-11 | 401.04     | Change the eighth pay item from the bottom of the list on this page to read as follows:<br>Culv End Sect __ inch, Grate.....Each  |
| 4-12 | 401.04.C.4 | Change this subsection to read:<br>“The Engineer will measure Culv End Sect __ inch, Grate by each as shown on the plans for the size of grate required.”   |
| 4-39 | 406.02     | Change the third line in the list of materials to read:<br>Coarse Aggregate 6A, 6AA, 17A.....902  |
| 4-41 | 406.03.A.3 | Delete the third paragraph of this subsection and replace with the following:<br>“Design joints between adjacent box culvert sections in accordance with Section 9 of ASTM C1577 and to accommodate the joint sealing material in accordance with section 914 as applicable.” |
| 4-50 | 406.03.G.3 | Change the first sentence of the first paragraph to read:<br>“Unless otherwise shown on the plans, construct culvert bedding for box culverts by placing a 9-inch-thick layer of 46G aggregate, covered with a 3-inch-thick layer of 34G, 34R aggregate, or approved equal.”  |
| 4-52 | 406.04.B   | In the second paragraph of this subsection delete the first sentence and replace with the following:<br>“The Department will pay separately for cast-in-place concrete, other than for culvert segments, headwalls, wingwalls, aprons, and curtain walls.”                    |
| 5-26 | 502.02     | Delete the first sentence of the subsection and the listed materials in this subsection.  |
| 5-26 | 502.02.A   | Add the following to the end of the first sentence in this subsection:<br>“(914.04A)”   |
| 5-26 | 502.02.B   | Add the following to the end of the first sentence in this subsection:<br>“(502.02B)”   |

- 6-20 602.04 Delete the fifteenth pay item of the list on this page reading:  
"Shoulder, Reinf Conc..... Square Yard
- 6-20 602.04 Change the sixteenth thru the eighteenth pay items on this page to read as follows:  
Shld, Nonreinf Conc..... Square Yard  
Shld, Nonreinf Conc, High Performance ..... Square Yard  
Shld, Freeway ..... Square Yard
- 6-21 602.04.B.1 Delete this subsection and replace with the following:  
**"Shld, Nonreinf Conc; and Shld, Nonreinf Conc, High Performance.** The Engineer will measure, and the Department will pay for, **Shld, Nonreinf Conc; and Shld, Nonreinf Conc, High Performance** by area, based on plan quantities in accordance with subsection 109.01."
- 6-21 602.04.B.2 Delete this subsection and replace with the following:  
**"Shld, Freeway.** The Engineer will measure, and the Department will pay for, **Shld, Freeway** based on plan quantities in accordance with subsection 109.01. If the Contractor uses concrete for the shoulder, the unit price for **Shld, Freeway** includes the cost of the transverse joints in the shoulder and the external longitudinal pavement joints."
- 6-23 602.04.F Add the following sentence to the end of the first paragraph of this subsection:  
Temporary concrete pavement, pavement within 4 feet of an obstruction, pavement areas less than 300 square yards, or pavement less than 3 feet wide will not be cored.
- 6-23 602.04.F Delete the following language from this subsection on this page:  
"The Engineer will not core the following:
1. Temporary concrete pavement;
  2. Pavement within 4 feet of an obstruction;
  3. Pavement areas less than 300 square yards; or
  4. Pavement less than 3 feet wide."
- 6-24 602.04 Rename the following subsections as follows:  
"1. Initial Core.
- 6-24 602.04 2. Additional Cores.
- 6-24 602.04 3. Price Adjustment for Thickness.
- 6-25 602.04 4. Price Adjustments for Steel Locations within the Pavement.
- 6-26 602.04 5. Remove and Replace."
- 7-107 709.04 Change the Pay Unit on the second pay item from the top of the list on this page to read as follows:  
Thousand Board Foot

- 8-12 804.03.B.2 Change the first sentence in this subsection to read:  
“Cast in place light standard and sign support foundations using fixed forms in accordance with the *MDOT Standard Plan R-50 series.*”
- 8-44 810.03.J.9 Add a period to the end of the third sentence in this subsection.
- 8-53 810.03.V Add a period to the end of the second sentence of the first paragraph of this subsection.
- 8-53 810.04 Change the fourth pay item from the top of the list on this page to read as follows:  
Post, Steel, \_\_ pound.....Foot
- 8-53 810.04 Change the last four pay items at the bottom of this page to read as follows:  
Fdn, Truss Sign Structure Type \_\_, \_\_ inch dia, Cased.....Foot  
Fdn, Truss Sign Structure Type \_\_, \_\_ inch dia, Uncased.....Foot  
Fdn, Cantilever Sign Structure Type \_\_, \_\_ inch dia, Cased ....Foot  
Fdn, Cantilever Sign Structure Type \_\_, \_\_ inch dia, Uncased.Foot
- 8-55 810.04.B.1 Delete the second paragraph of this subsection and replace with the following:  
“The unit prices for **Fdn, Truss Sign Structure Type \_\_, \_\_ inch dia, Cased** and **Fdn, Cantilever Sign Structure Type \_\_, \_\_ inch dia, Cased** include the cost of concrete, slurry, steel reinforcement, permanent casings, anchor bolts, excavation, and disposal of excavated material.”
- 8-55 810.04.B.2 Delete this subsection and replace with the following:  
“**Foundation, Truss Sign Structure, Uncased and Foundation, Cantilever Sign Structure, Uncased.** The unit prices for **Fdn, Truss Sign Structure Type \_\_, \_\_ inch dia, Uncased** and **Fdn, Cantilever Sign Structure Type \_\_, \_\_ inch dia, Uncased** include the cost of concrete, slurry, steel reinforcement, temporary casings, anchor bolts, excavation, and disposal of excavated material.”
- 8-57 810.04.I Delete the first paragraph of this subsection and replace with the following:  
“The unit price for **Sign, Rem** of the type required includes the cost of removing signs from supports and stacking by shape and size.”
- 8-57 810.04.I Delete the second paragraph of this subsection and replace with the following:  
“The unit prices for **Ground Mtd Sign Supports, Rem; Cantilever, Rem** and **Truss, Rem** include the cost of removing ground mounted sign supports, cantilever or truss supports.”
- 8-57 810.04.L Change this subsection to read:



“The unit price for Sign, Erect, Salv of the type required includes erecting the salvaged sign on a new sign support or existing sign support, as shown on the plans, and attaching devices, and hardware, including brackets.”

- |       |              |  |
|-------|--------------|--|
| 8-58  | 810.04.N     | Delete this subsection in its entirety.  |
| 8-110 | 812.04       | Change the fifth and sixth pay item from the top of the list on this page to read as follows:<br>Sign, Type B, Temp, Prismatic, Spec, Furn ..... Square Foot<br>Sign, Type B, Temp, Prismatic, Spec, Oper ..... Square Foot  |
| 8-141 | 815.04.C.1.d | Delete this subsection in its entirety.  |
| 8-142 | 815.04.C.2.d | Change this subsection to read:<br>"During the first watering of the second growing season, remove and dispose of the guying material, identification tags, and inspection tags."  |
| 8-144 | 816.03.A     | Change the third sentence in this subsection to read:<br>“Use topsoil from within the project limits; or from off-site sources meeting the requirements in subsection 917.06.”   |
| 8-167 | 818.04       | Add the pay item to the bottom of the list on this page as follows:<br>Power Company (Estimated Cost to Contractor) ..... Dollar   |
| 8-170 | 818.04.G     | Delete this subsection in its entirety.  |
| 8-170 | 818.04       | Rename the following subsections as follows:<br>“G. <b>Handholes (Hh).</b><br>H. <b>Service Disconnect.</b><br>I. <b>Metered Service.</b><br>J. <b>Unmetered Service.</b><br>K. <b>Wood Pole.</b><br>L. <b>Concrete Pole, Fit Up.</b><br>M. <b>Steel Pole, Fit Up.</b><br>N. <b>Bracket Arm.</b> ”   |
| 8-171 | 818.04       | H. <b>Service Disconnect.</b>  |
| 8-171 | 818.04       | I. <b>Metered Service.</b>   |
| 8-171 | 818.04       | J. <b>Unmetered Service.</b>   |
| 8-172 | 818.04       | K. <b>Wood Pole.</b>   |
| 8-172 | 818.04       | L. <b>Concrete Pole, Fit Up.</b>   |
| 8-172 | 818.04       | M. <b>Steel Pole, Fit Up.</b>  |
| 8-172 | 818.04       | N. <b>Bracket Arm.</b> ”   |
| 8-171 | 818.04.J     | Delete the second paragraph of this subsection and replace with the following:<br>“The pay item, <b>Power Company (Estimated Cost to Contractor)</b> , establishes a budgeted amount in the contract to cover the cost of reimbursing the Contractor for payments made to the power company for providing electrical power at the locations shown on the plans. The Department will estimate the reimbursement costs to the Contractor and establish a budgeted amount as shown on the plans. The Department will pay the Contractor for power company invoices paid, as submitted to the Engineer.” |
| 8-185 | 820.01.B     | Add a period to the end of the first sentence of this subsection.  |

8-199	820.04	Add the pay item to the list on this page: TS, (number) Way (type) Mtd (LED) Optic
8-200	820.04	Change the second pay item from the top of the list on this page to read as follows: TS Head, Temp .....Each
8-200	820.04	Change the eleventh pay item from the top of the list on this page to read as follows: TS, Lens, Pedestrian Sym (LED) .....Each
8-200	820.04	Delete the following pay items from the list: Strain Pole, Steel, 6 bolt, __ foot.....Each Mast Arm Pole, Cat.....Each Mast Arm, __Foot, Cat.....Each
8-200	820.04	Change the eleventh pay item from the bottom of the list on this page to read as follows: Mast Arm, Rem.....Each
8-201	820.04	Delete the following pay item from the list: Power Co. (Est Cost to Contractor)..... Dollar
8-202	820.04	Add the following pay item to the list: Bracket, Truss, Salv.....Each
8-204	820.04.C	Delete the last paragraph of this subsection in its entirety.
8-204	820.04.D	Delete the first paragraph of this subsection in its entirety.
9-9	902.03.C.1.b	Delete the first sentence in this subsection and replace with the following: “The physical requirements for the coarse aggregate are as specified in Table 902-2 and as follows:”
9-16	Table 902-2	Delete the superscript footnote in the first through fourth rows under the header row that reads “(m)” in the column Loss, % max, LA Abrasion (MTM 102).
9-16	Table 902-2	Add the superscript footnote in the header row that reads “(m)” in the column Loss, % max, LA Abrasion (MTM 102).
9-15	Table 902-2	Delete the footnote (d) in one location in the table.
9-17	Table 902-2	Delete the footnote (d) in one location in the table.
9-21	Table 902-6	Delete the footnote (b) in two locations in the table.
9-21	Table 902-6	Change the footnote (c) to read (b) in two locations in the table.
9-21	Table 902-6	Change the footnote (d) to read (c) in two locations in the table.

9-70	909.05.D	Change the first sentence in this subsection to read: "Provide steel pipe for jacking in place meeting the requirements of ASTM A53/A53M for Type E or Type S, Grade B, or ASTM A139/A139M for Grade B."
9-94	Table 910-01	Change the value in the fifth row under the header row in the Permittivity (min) (per second) column from 0.5 to read: "0.05"
9-94	Table 910-01	Change the value in the seventh row under the header row in the Permittivity (min.) (per second) column from 0.5 to read: "0.05"
9-95	Table 910-2	Change the second row under the Ultimate strength section to read: "CMD <sup>(c)</sup> 1950 lb/ft"
9-119	913.06	Change this subsection to read: Circular precast concrete units with circular reinforcement for adjusting rings, tops, risers, and sump bases for manholes, catch basins, and inlets must meet the requirements of AASHTO M199 and the following additions and exceptions:
9-133	917.03	Rename the four subsections following the first paragraph on this page as follows: D. Deciduous Shade Trees. E. Small Trees, Ornamentals, and Shrubs. F. Evergreen Trees. G. Vines, Ground Cover, and Herbaceous Ornamental Plants.
9-170	920.02.C	Change the reference to Table 920-2 to read Table 920-3 in two locations.
10-23	1003.03.B	Delete the last sentence of this subsection and replace with the following: "Aggregate sampling for concrete will be performed by an MCAT-certified Aggregate Technician Level II."
10-43	Table 1006-02	Replace Table 1006-02 with the Table 1006-02 below.

**1A - 20A Pay Item Index** Replace the Pay Item Index in its entirety.

**Table 1006-2:  
Overlay Mixtures**

Mixture Type	Aggregate	Slump (inch)	Air Content	Admixture Required	Mixture Proportions lb/yd <sup>3</sup> , dry weight					
					Cement <sup>(a)</sup>	Dry Densified Silica Fume <sup>(b)</sup>	Net Mix Water	Fine Agg	Coarse Agg	Latex Admixture
SFMC	2NS and 26A <sup>(c)</sup>	4–6	6.5 ±1.5%	(d),(e),(f)	618	40	273 <sup>(g)</sup>	1273	1601	—
LMC	2NS and 26A <sup>(c)</sup>	(h)	4.5 ±1.5%	—	658	—	(h)	1490 <sup>(i),(j)</sup>	1300 <sup>(i),(j)</sup>	206

(a) Use only Type I Portland cement.

(b) For SFMC mixtures, the Contractor may use a blended silica fume Portland cement. However, if the silica fume content of the blended material is greater than 8% of the total cementitious material, submit to the Engineer modified mix proportions with Type I Portland cement added to the blended material to achieve the equivalent individual cementitious material mixture proportions.

(c) Provide coarse aggregate, 95% minimum crushed materials in accordance with Michigan Test Method (MTM) 117, with an absorption no greater than 2.5%, in accordance with ASTM C127.

(d) Water-reducing high-range admixture or water-reducing high-range and retarding admixture.

(e) Virgin polypropylene collated fibers at 2 lb/yd<sup>3</sup>.

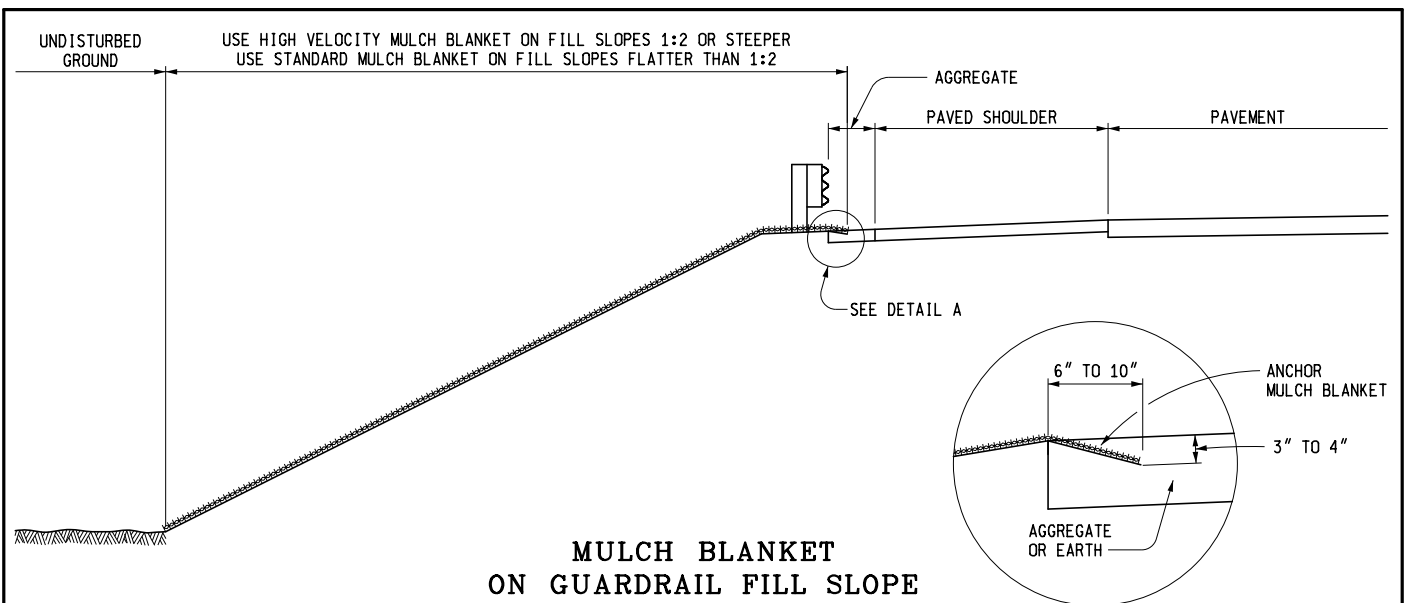
(f) Air-entraining admixture.

(g) Provide a net water to cementitious material ratio of 0.41 (cementitious material includes cement and silica fume).

(h) Add water in addition to water in the latex admixture to control slump to within 3 to 5 inches. Measure slump from 4 to 5 minutes after discharge from the mixer. During the waiting period, deposit concrete on the deck and do not disturb. If placing mixtures on sections within superelevated curves, the Contractor may need to use the lower allowable range of the slump requirement, as determined by the Engineer. Do not exceed water-cement ratio, by weight, of 0.30 including water contained in the latex emulsion.

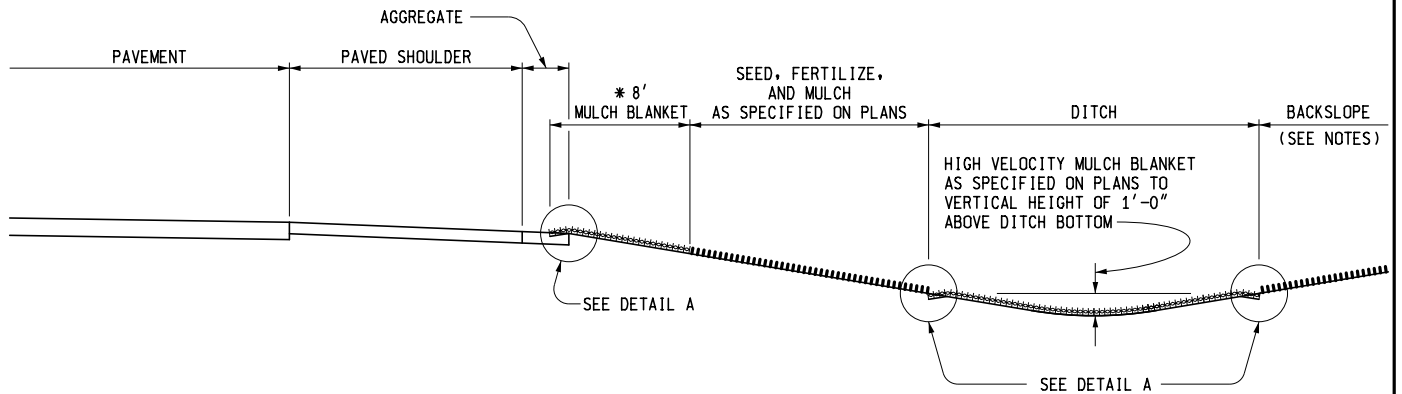
(i) Aggregate proportions are approximate; due to gradation changes, the Contractor may increase proportions by no greater than 5% by weight of total aggregate if reducing coarse aggregate by an equivalent volume.

(j) Aggregate weights specified in the table are based on a dry bulk specific gravity of 2.65 for gravel and stone. Adjust the weights if the specific gravity of the materials used varies by more than 0.02 from the specified values.

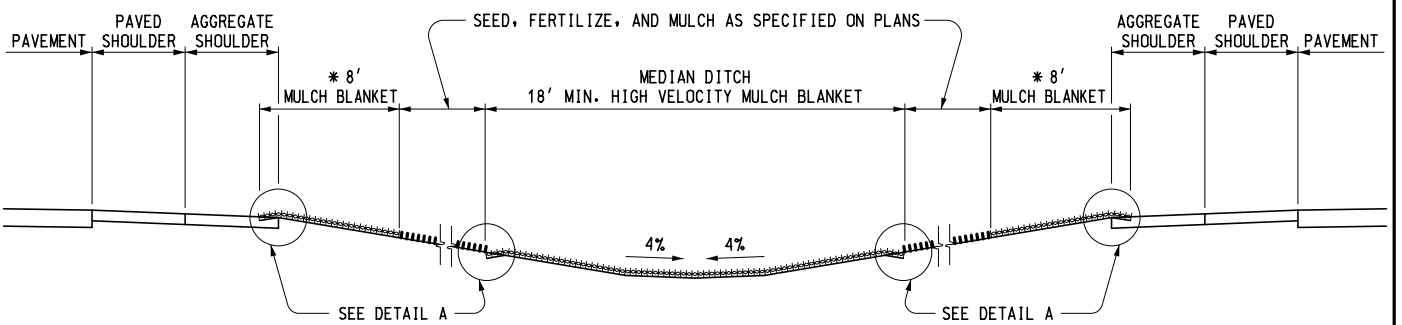


**MULCH BLANKET ON GUARDRAIL FILL SLOPE**

**DETAIL A**



**TYPICAL SLOPE AND DITCH PROTECTION**

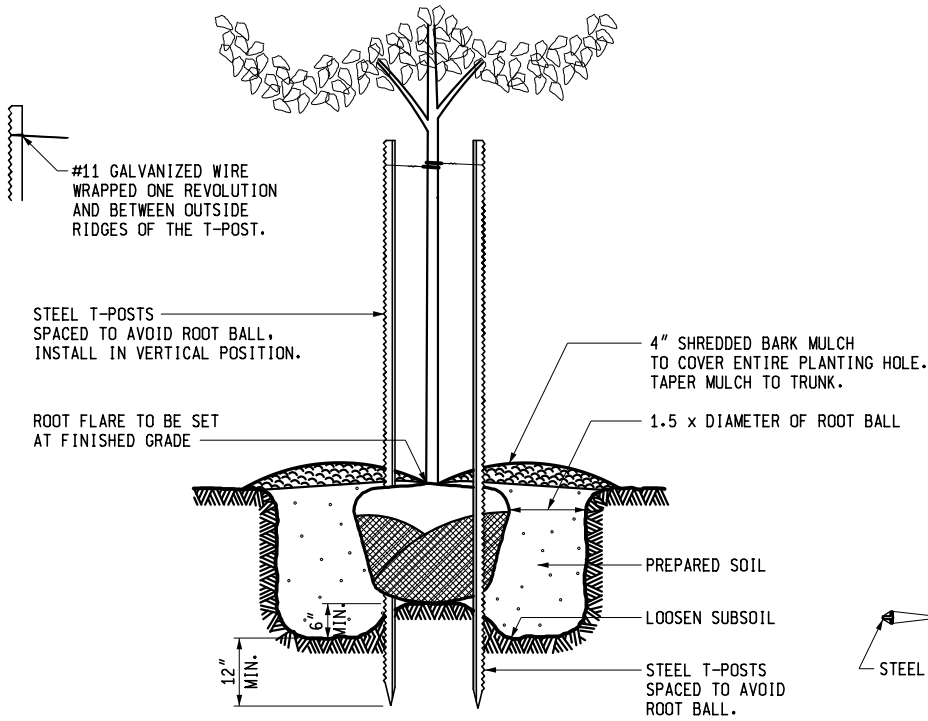


**MULCH BLANKET SPILLWAY DITCH**

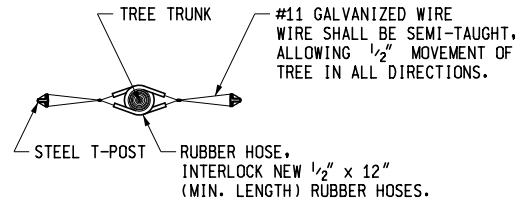
\* NOTE:

MULCH BLANKET SHALL BE USED ON BOTH SIDES OF NORMAL SECTIONS, HIGH SIDES OF ALL SUPERELEVATED SECTIONS, AND LOW SIDES OF PAVEMENTS HAVING A SUPERELEVATION OF 5% OR LESS. HIGH VELOCITY MULCH BLANKET SHALL BE USED ON THE LOW SIDE OF PAVEMENTS HAVING A RATE OF SUPERELEVATION GREATER THAN 5%.

	DEPARTMENT DIRECTOR Paul C. Ajegba	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR	
	PREPARED BY DESIGN DIVISION	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	<b>SEEDING AND TREE PLANTING</b>
DRAWN BY: <u>B.L.T.</u>	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	8-3-2021 PLAN DATE	<b>R-100-I</b>
CHECKED BY: <u>W.K.P.</u>		F.H.W.A. APPROVAL	SHEET 1 OF 4



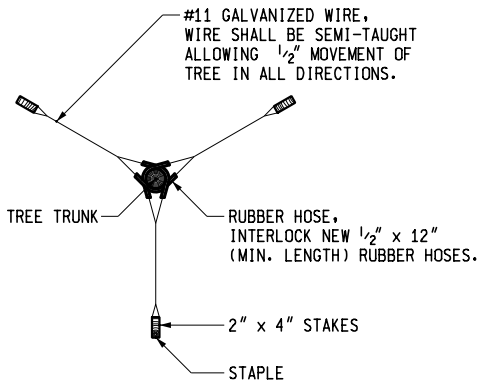
**BRACING - VERTICAL STAKES**



**BRACING DETAIL**

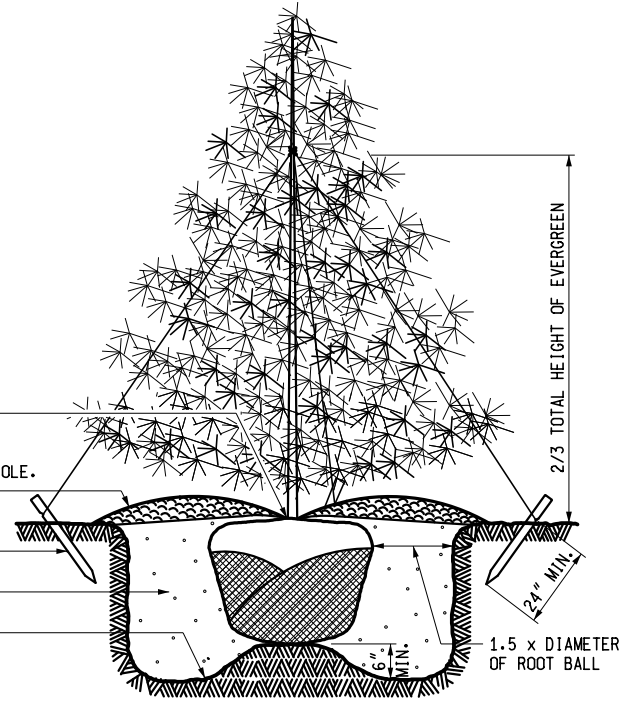
BRACE DECIDUOUS TREES 2" TO 4" IN CALIPER OR 8' OR MORE IN HEIGHT WITH TWO STAKES.

BRACE DECIDUOUS TREES LESS THAN 2" IN CALIPER OR 8' IN HEIGHT WITH ONE STAKE ON THE WESTERLY SIDE OF THE PLANT.

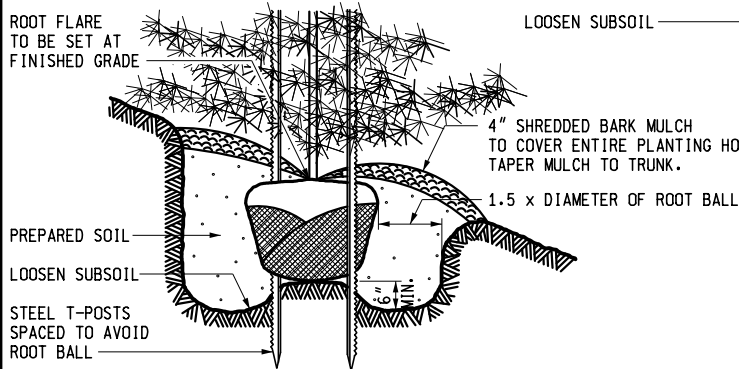


**TRIPOD GUYING DETAIL**

GUY EVERGREENS OVER 4" IN CALIPER OR 6' IN HEIGHT WITH THE TRIPOD METHOD AND UNDER 6' IN HEIGHT WITH TWO STAKES.



**GUYING - TRIPOD METHOD**



**SLOPE PLANTING**

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

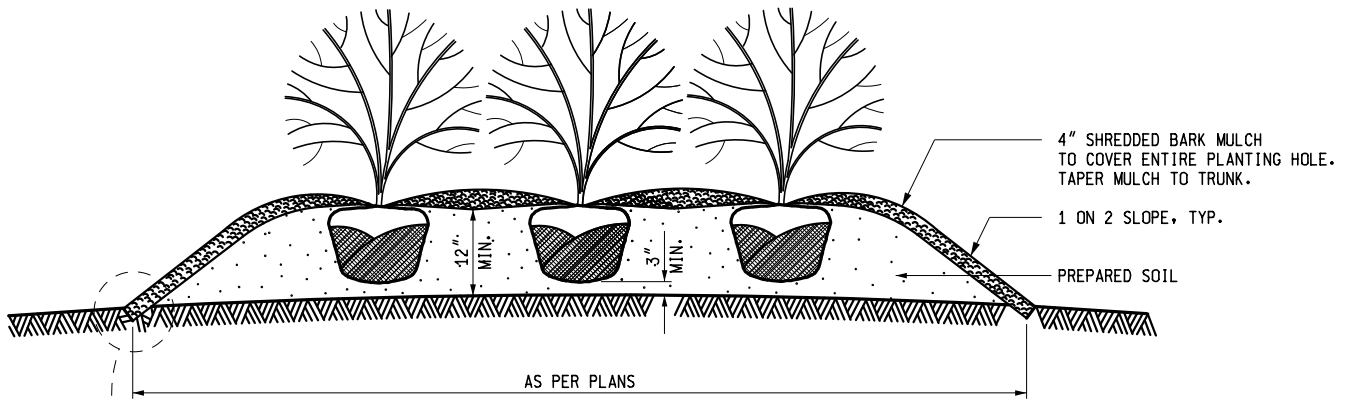
**SEEDING  
AND TREE PLANTING**

F.H.W.A. APPROVAL

8-3-2021  
PLAN DATE

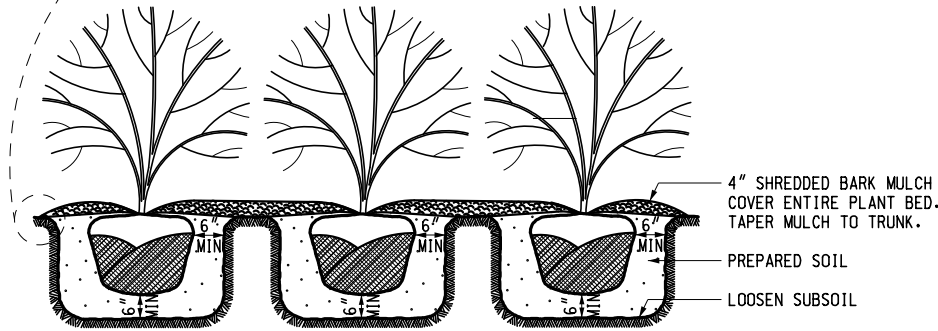
R-100-I

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2 OF 4



**RAISED SHRUB BED DETAIL**

**SHRUB BED EDGING DETAIL**



**SHRUB BED DETAIL**

FIRST AND SECOND WATERING AND CULTIVATION SHALL INCLUDE SHRUB BEDS.

CUT 6" X 12" (MIN.) EDGING AROUND THE PERIMETER OF ALL SHRUB BEDS SHOWN ON THE PLANS. SPRAY A NON-PERSISTENT GLYPHOSATE HERBICIDE TO ENTIRE SHRUB BEDS PRIOR TO PLANTING AND BARK PLACEMENT.

SHRUB BEDS ARE TO BE PAID FOR BY THE PAY ITEM 'SITE PREPARATION'.

ALL PLANTS SHALL BE SET PLUMB AND HAVE THE BEST SIDE OF PLANT FACING THE MAIN VIEWING DIRECTION.

**PLANTING NOTES:**

ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE - IMMEDIATELY.

LOOSEN SUBSOIL TO A DEPTH OF 4". LOOSEN EARTH ON SIDES OF PLANT POCKET TO BREAK ANY GLAZING CAUSED BY DIGGING.

FILL PREPARED SOIL TO 1/2 THE DEPTH OF THE ROOT BALL, PACK FIRMLY, AND PUDDLE WITH WATER.

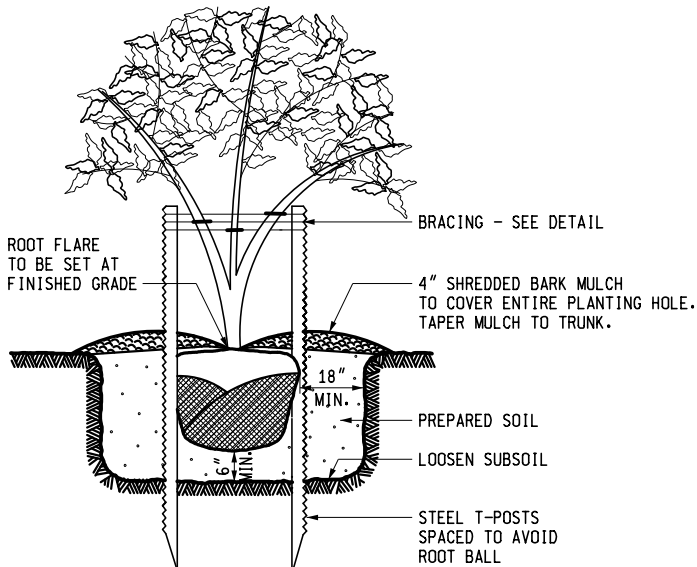
BACKFILL WITH PREPARED SOIL WHICH, AFTER COMPACTION, IS FLUSH WITH SURROUNDING GROUND LEVEL.

COVER ENTIRE PLANT POCKET AREA WITH 4" MULCH. PRUNE AND BRACE AND GUY.

WHEN PLANTS ARE FURNISHED IN CONTAINERS, CONTAINERS SHALL BE COMPLETELY REMOVED AT THE TIME OF PLANTING.

TREE HEIGHTS ARE SHOWN BEFORE PRUNING. TREE PLANTING DEPTHS ARE SHOWN AFTER SETTLING.

TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 50' AND 30' RESPECTIVELY OF THE NEAREST EDGE OF METAL - EXCEPT WHERE INACCESSIBLE TO VEHICLES.

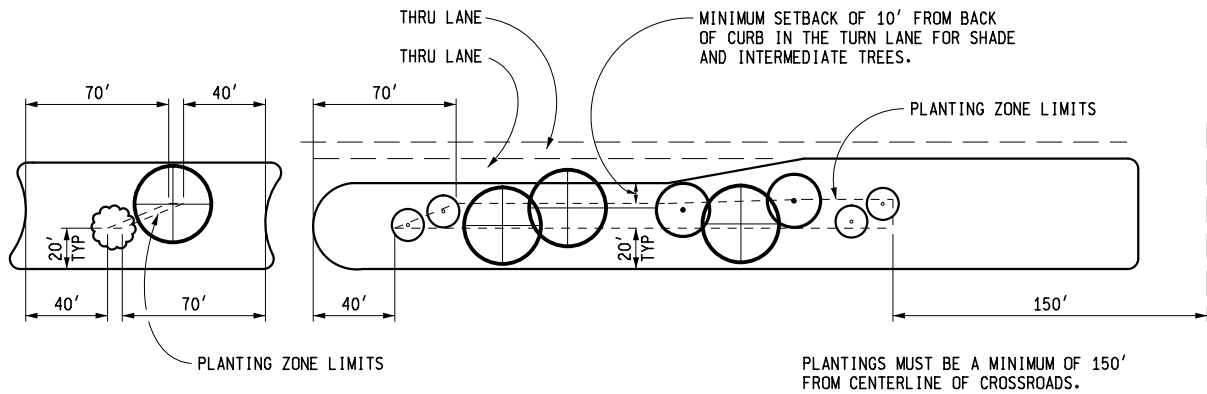


**MULTIPLE STEM TREES**

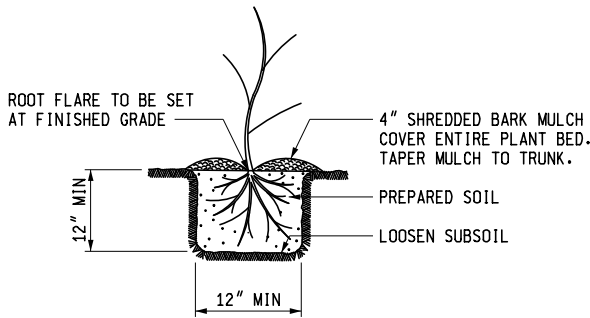
MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**SEEDING  
AND TREE PLANTING**

F.H.W.A. APPROVAL	8-3-2021 PLAN DATE	R-100-I	SHEET 3 OF 4
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**MEDIAN PLANTING**  
NOT TO SCALE



**BARE ROOT PLANTS**

**PLANTING BARE ROOT PLANT MATERIAL**

REFER TO THE "SPECIAL PROVISIONS FOR BARE ROOT PLANTING" FOR SHIPPING, STORAGE AND HANDLING REQUIREMENTS.

MAINTAIN ROOT MOISTURE BY KEEPING ROOTS IMMersed IN WATER PRIOR TO PLANTING.

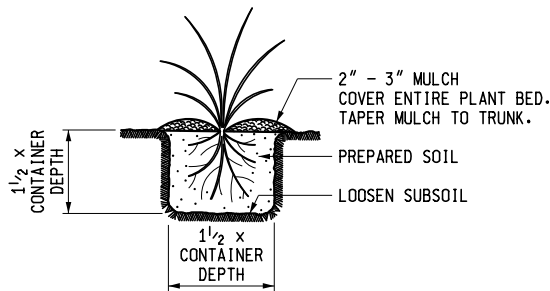
ROOT PRUNE AS NECESSARY TO REMOVE ALL DAMAGED OR BROKEN ROOTS, AND AS REQUIRED BY THE DISTRICT FORESTER OR RESOURCE SPECIALIST.

DIG PLANTING HOLES AT LEAST 12" WIDE AND 12" DEEP TO ACCOMMODATE ROOT MASS.

SET PLANTS PLUMB WITH THE ROOTS SPREAD PUT IN A NATURAL POSITION AT A DEPTH EQUAL TO THE DEPTH AT THE NURSERY.

HOLD PLANT FIRMLY AND PUDDLE (NOT TAMP) THE BACKFILL AROUND THE ROOTS WITH WATER. SUFFICIENT WATER SHALL BE USED TO ENSURE SATURATION OF THE BACKFILL, BUT CARE SHOULD BE TAKEN NOT TO OVERWATER, CAUSING A FLOATING SOIL MASS THAT PREVENTS COMPACTION AND MAY RESULT IN AIR POCKETS ADJACENT TO THE ROOTS. BACKFILL SHOULD BE FLUSH WITH THE GROUND AFTER COMPACTION.

COVER ENTIRE PLANT POCKET AREA WITH 4" MULCH AS SHOWN.



**PERENNIAL PLANTS**

FIRST AND SECOND WATERING AND CULTIVATION SHALL INCLUDE PERENNIAL BEDS.

PERENNIALS ARE TO BE FULLY DEVELOPED TWO YEAR #2 CONTAINER PLANTS.

ENTIRE PERENNIAL BED SHALL BE EXCAVATED DOWN 12" AND REPLACED WITH 12" OF PREPARED SOIL.

PERENNIAL BEDS ARE TO BE PAID FOR BY THE PAY ITEM 'SITE PREPARATION'.

**SEEDING NOTES:**

THIS STANDARD ILLUSTRATES THE TYPICAL USE OF SEEDING WITH MULCH, AS THESE ITEMS RELATE TO ROADWAY CONSTRUCTION. THE ACTUAL DESIGN AND MATERIALS USED TO CONSTRUCT THE COMPLETE SECTION, WHICH INCLUDES SEEDING WITH MULCHING, WILL BE ACCORDING TO THE PLANS AND CURRENT SPECIFICATIONS.

ITEMS CALLED FOR ON THIS STANDARD MAY ALSO BE USED DURING CONSTRUCTION AS AN EROSION CONTROL MEASURE. SEE STANDARD PLAN R-96-SERIES.

ALL DITCHES SHOULD HAVE HIGH VELOCITY MULCH BLANKET FOR EROSION CONTROL.

THE FIRST 8' BEHIND THE CURB OR SHOULDER IN URBAN MEDIAN AREAS WILL BE SEEDED, FERTILIZED, AND MULCHED WITH MULCH BLANKET. THE REMAINING AREAS WILL BE SEEDED, FERTILIZED, AND MULCHED WITH MULCH BLANKET OR STANDARD MULCH ANCHORED IN PLACE WITH A MULCH ADHESIVE OR WITH A MULCH NET.

ALL AREAS WHERE MULCH BLANKET IS CALLED FOR SHALL BE SEEDED, FERTILIZED, AND TOPSOILED AS SPECIFIED ON PLANS. NO MULCH OR ANCHORING MULCH IS REQUIRED WHERE MULCH BLANKET IS INSTALLED.

BACKSLOPE RESTORATION TREATMENT SHALL BE THE SAME AS THE FRONT SLOPE.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**SEEDING  
AND TREE PLANTING**

F.H.W.A. APPROVAL	8-3-2021 PLAN DATE	R-100-I	SHEET 4 OF 4
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## SIGN MATERIAL SELECTION TABLE

SIGN SIZE	SIGN MATERIAL TYPE		
	TYPE I	TYPE II	TYPE III
≤ 36" X 36"		X	X
>36" X 36" ≤ 96" TO WIDE		X	
> 96" WIDE TO 144" WIDE	X	X	
> 144" WIDE	X		


TYPE I           ALUMINUM EXTRUSION  
 TYPE II          PLYWOOD  
 TYPE III         ALUMINUM SHEET

ROUNDING OF CORNERS IS NOT REQUIRED FOR TYPE I OR II SIGNS.  
 VERTICAL JOINTS ARE NOT PERMITTED.  
 HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE NOT PERMITTED.

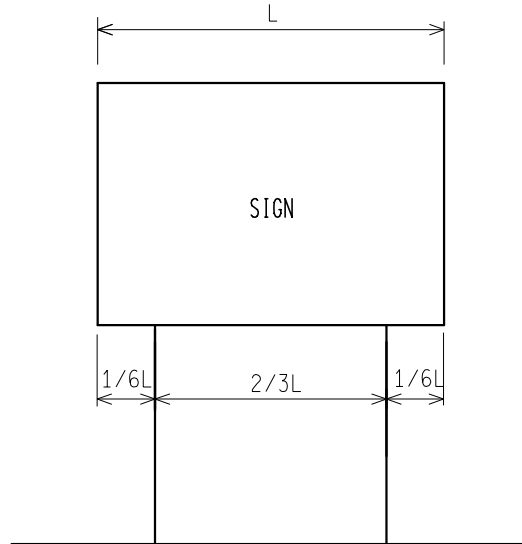
## POST SIZE REQUIREMENTS TABLE

SIGN AREA (ft <sup>2</sup> )	POST TYPE		
	U-CHANNEL STEEL	SQUARE TUBULAR STEEL	WOOD
≤ 9	1 - 3 lb/ft*	1 - 2" 12 or 14 GA*	N/A
9 ≤ 20	2 - 3 lb/ft	2 - 2" 12 or 14 GA	1 - 4" X 6"*
> 20 ≤ 30	N/A	N/A	2 - 4" X 6"
> 30 ≤ 60	N/A	N/A	2 - 6" X 8"
> 60 ≤ 84	N/A	N/A	3 - 6" X 8"

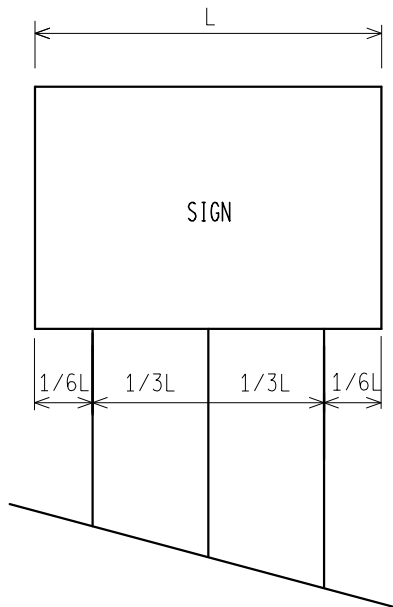
\*SIGNS 4 FEET AND GREATER IN WIDTH REQUIRE 2 POSTS.  
 SIGNS GREATER THAN 8 FEET IN WIDTH REQUIRE 2 OR 3 WOOD  
 POSTS DEPENDING ON AREA OF SIGN.  
 A MAXIMUM OF 2 POSTS WITHIN A 7' PATH IS PERMITTED.

  PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	<h1 style="margin: 0;">GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS</h1>		
DRAWN BY: <u>CON/ECH</u> CHECKED BY: <u>AUG</u>	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	_____ F.H.W.A. APPROVAL	<u>11/2/2017</u> PLAN DATE	<u>WZD-100-A</u> SHEET 1 OF 11

## 2 POST SIGN SUPPORT SPACING



## 3 POST SIGN SUPPORT SPACING



\* FOR ALL 11' AND 12' LONG SIGNS ON 3 WOOD SUPPORTS, SPREAD POSTS SO AS TO HAVE A 8' MIN. TO 9' MAX. DISTANCE BETWEEN OUTSIDE POSTS.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

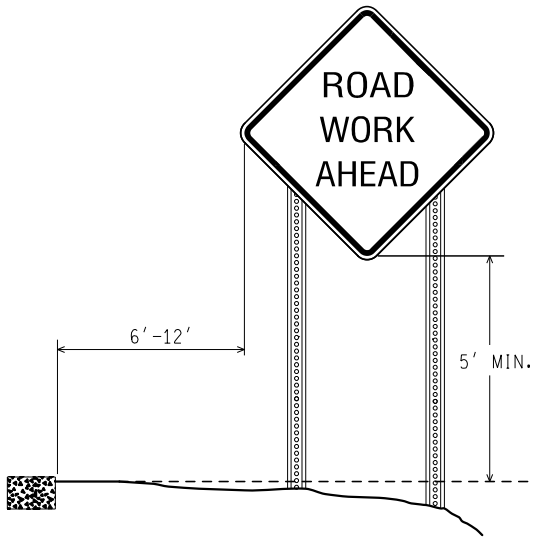
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

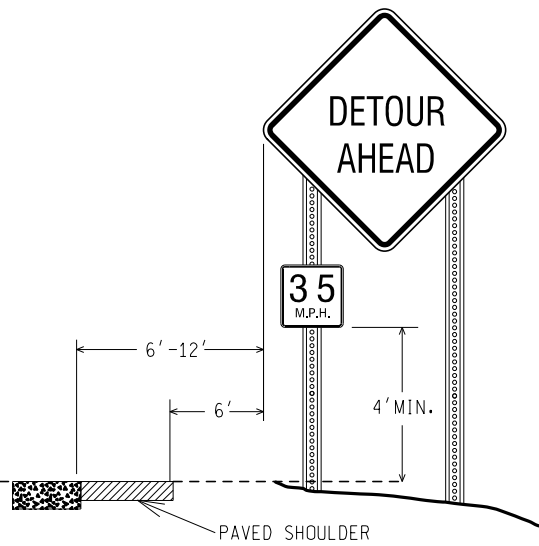
WZD-100-A

SHEET  
2 OF 11

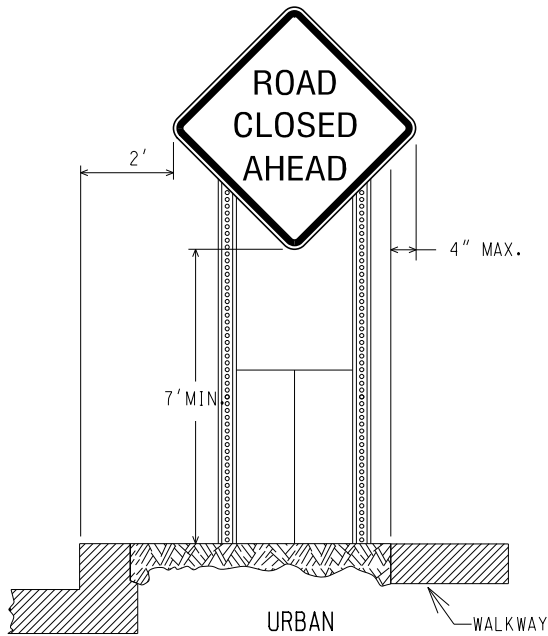
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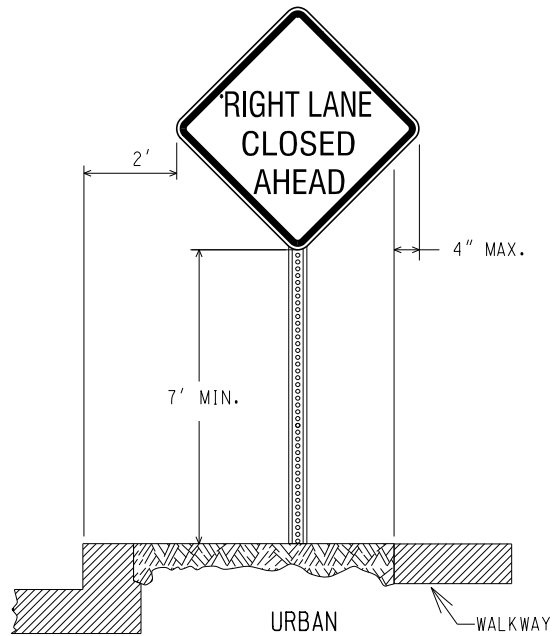
RURAL



RURAL WITH ADVISORY SPEED PLATE



(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)



(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)

BOTTOM HEIGHT AND OFFSET

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

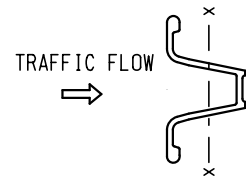
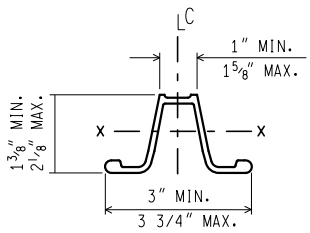
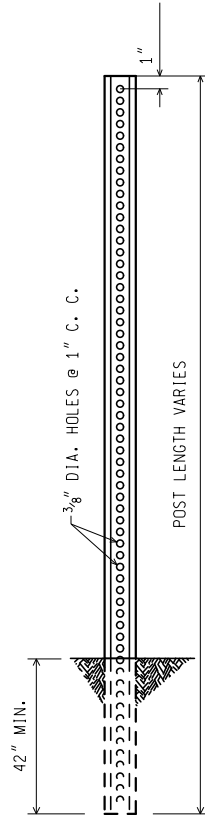
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11/2/2017  
PLAN DATE

WZD-100-A

SHEET  
3 OF 11

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WEIGHT = 3 lbs/ft  
 SECT. MOD. X.-X. = 0.31 CUBIC INCHES MIN.

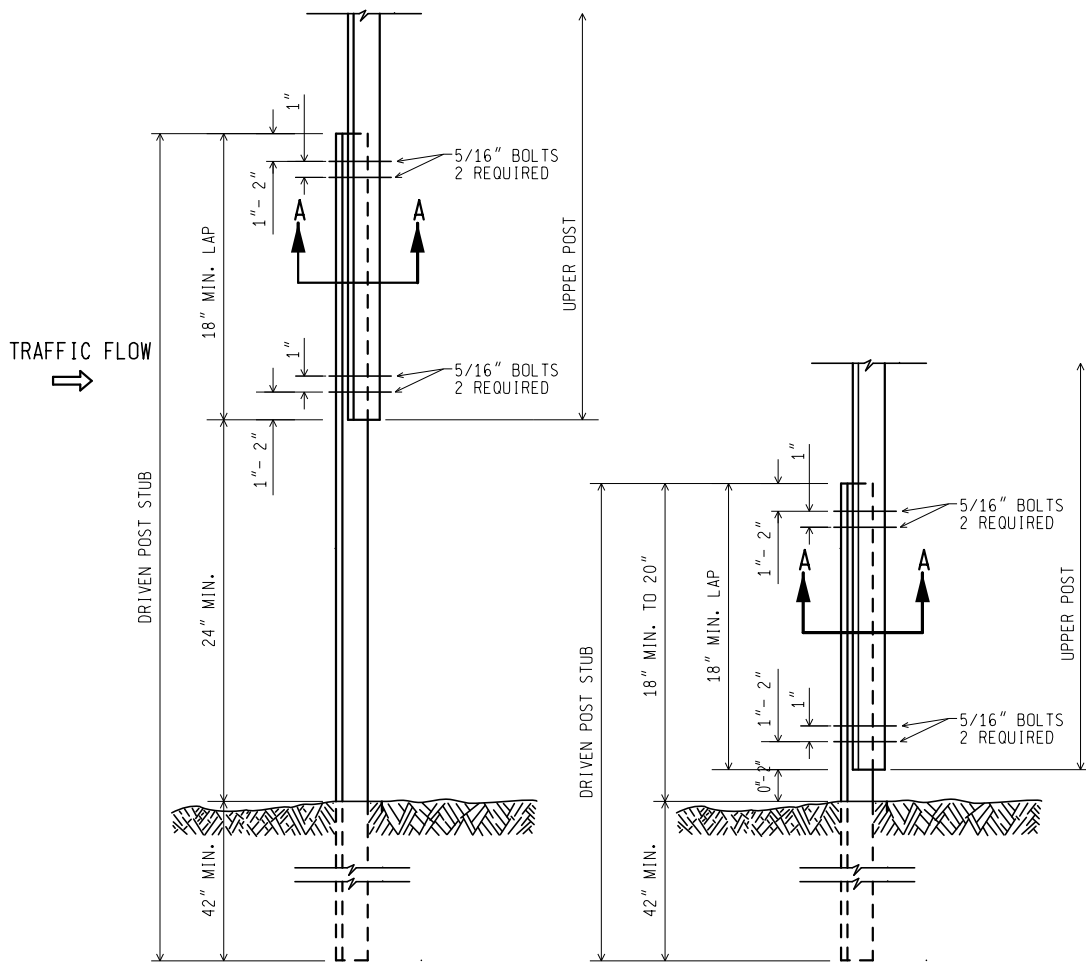
**3 lb. U - CHANNEL STEEL POST**  
 (NO SPLICE)

MOUNT SIGN ON OPEN FACE OF  
 U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 4 OF 11
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



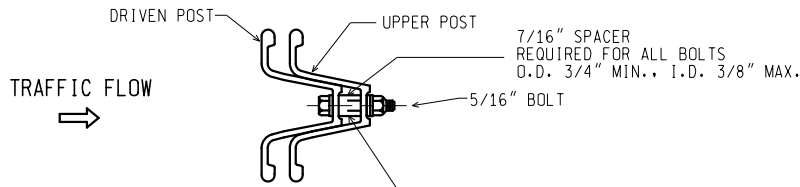
3 lb. U - CHANNEL STEEL POST  
(WITH SPLICE)

MOUNT SIGN ON OPEN FACE OF  
UPPER U - CHANNEL STEEL POST

NOT TO SCALE

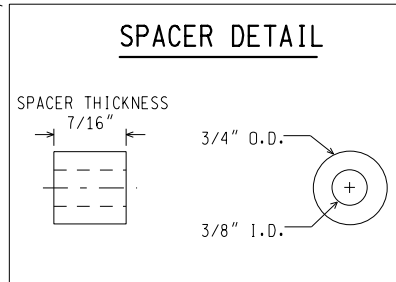
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 5 OF 11
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



SECTION A-A

7/16" SPACER  
 REQUIRED FOR ALL BOLTS  
 O.D. 3/4" MIN., I.D. 3/8" MAX.



NOTES:

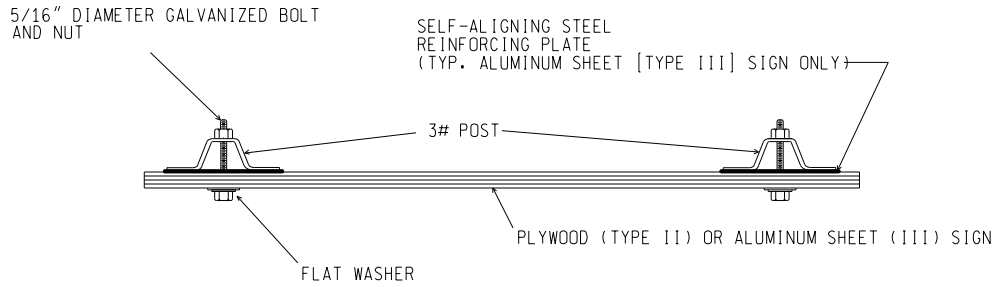
1. THE SPACER THICKNESS SHALL BE 1/16" LESS THAN THE GAP BETWEEN THE POST WHEN POSITIONED IN THE UNBOLTED CONFIGURATION.
2. THE EXTERIOR BOLT (CLOSEST TO LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN A PREPUNCHED HOLE 1" TO 2" FROM THE END OF THE LAP.
3. THE INTERIOR BOLT (FARTHEST FROM LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN THE NEXT PREPUNCHED HOLE.
4. THE DRIVEN POST SHALL ALWAYS BE MOUNTED IN FRONT OF THE UPPER POST WITH RESPECT TO THE ADJACENT ONCOMING TRAFFIC, REGARDLESS OF THE DIRECTION THE SIGN IS FACING.
5. THE SPLICE LAP SHALL BE FASTENED BY FOUR-5/16" DIA. GALVANIZED A449 BOLTS (SAE J429 GRADE 5) OR GALVANIZED A325 BOLTS.

3 lb. U - CHANNEL STEEL POST  
 (WITH SPLICE)

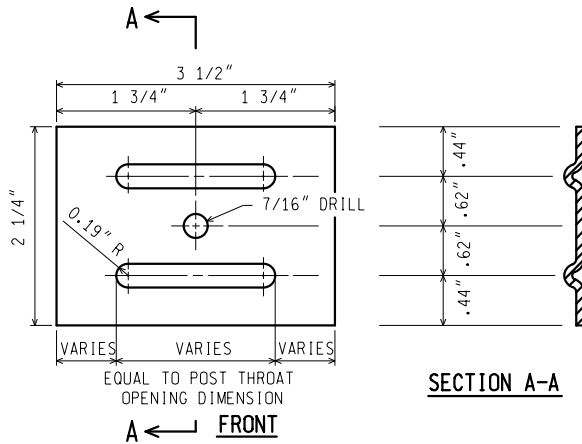
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 6 OF 11
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SIGN TO 3 lb. POST CONNECTION



NOTES: (FOR STEEL SIGN REINF' PLATE)

1. MATERIAL: 12 GAUGE CARBON STEEL.
2. TOLERANCE ON ALL DIMENSIONS  $\pm 0.0625"$
3. FINISH-AFTER STAMPING AND PUNCHING, GALVANIZE ACCORDING TO CURRENT SPECIFICATIONS FOR ZINC (HOT GALVANIZE) COATINGS ON PRODUCTS FABRICATED FROM PLATES OR STRIPS

STEEL SIGN REINFORCING PLATE  
REQUIRED FOR TYPE III SIGNS ONLY

3 lb. U - CHANNEL STEEL POST SIGN CONNECTION

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

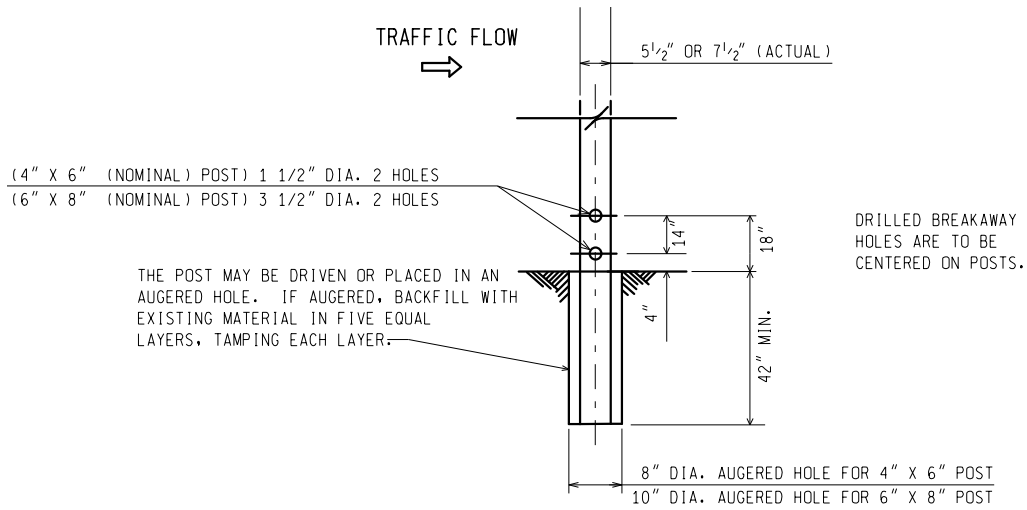
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

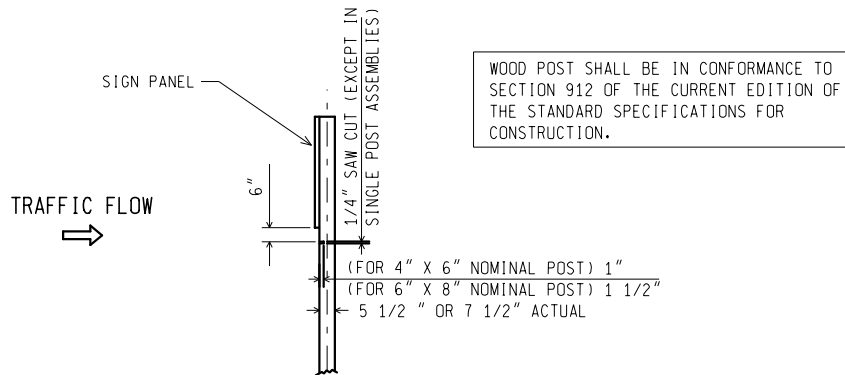
WZD-100-A

SHEET  
7 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



WOOD POST BREAKAWAY HOLES/  
DIRECT EMBEDMENT DETAILS



SAW CUT DETAIL  
(MULTIPLE POST INSTALLATIONS)

WOOD POST DETAILS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

F.H.W.A. APPROVAL

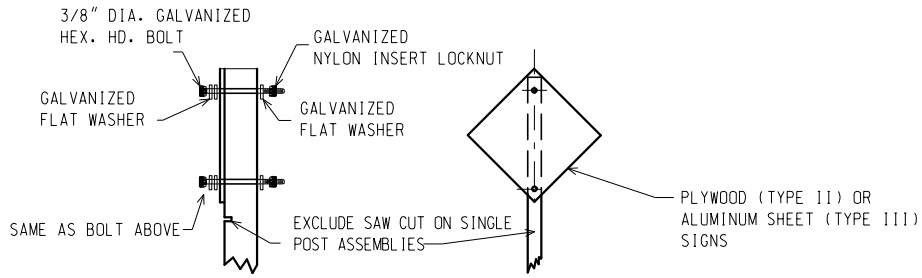
11/2/2017  
PLAN DATE

WZD-100-A

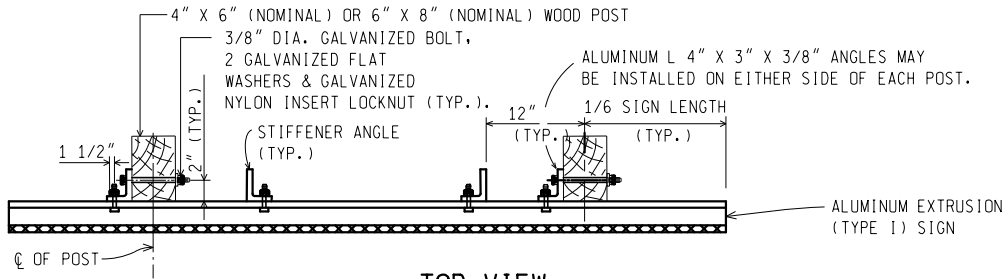
SHEET  
8 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

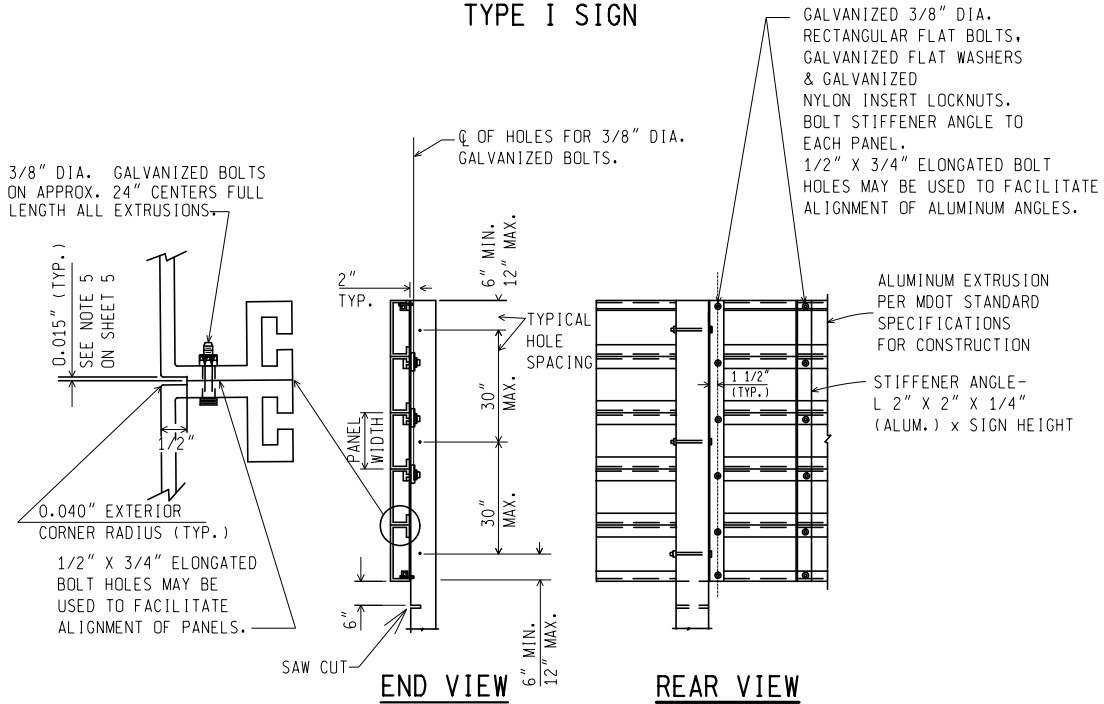




**TYPE II AND TYPE III SIGNS**



**TOP VIEW  
TYPE I SIGN**



**WOOD POST CONNECTIONS**

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

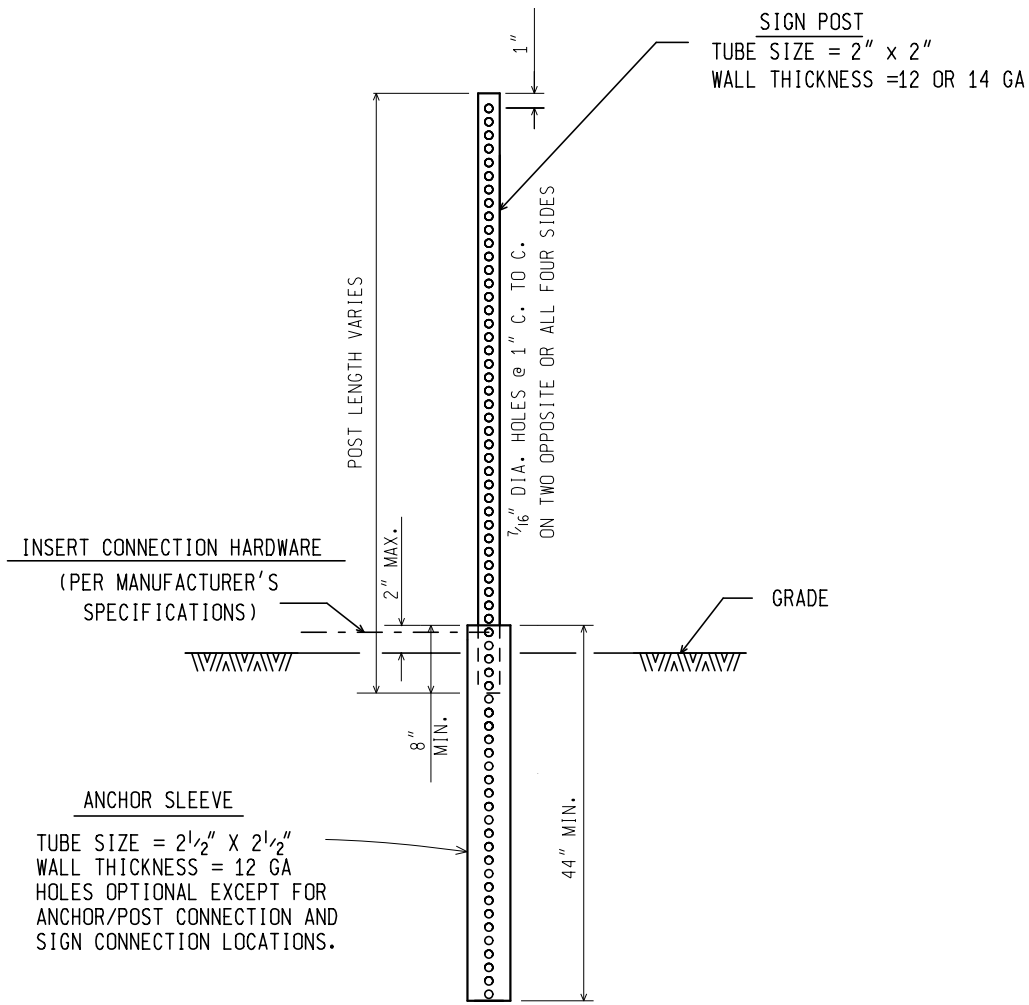
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

WZD-100-A

SHEET  
9 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



SQUARE TUBULAR STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 10 OF 11
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

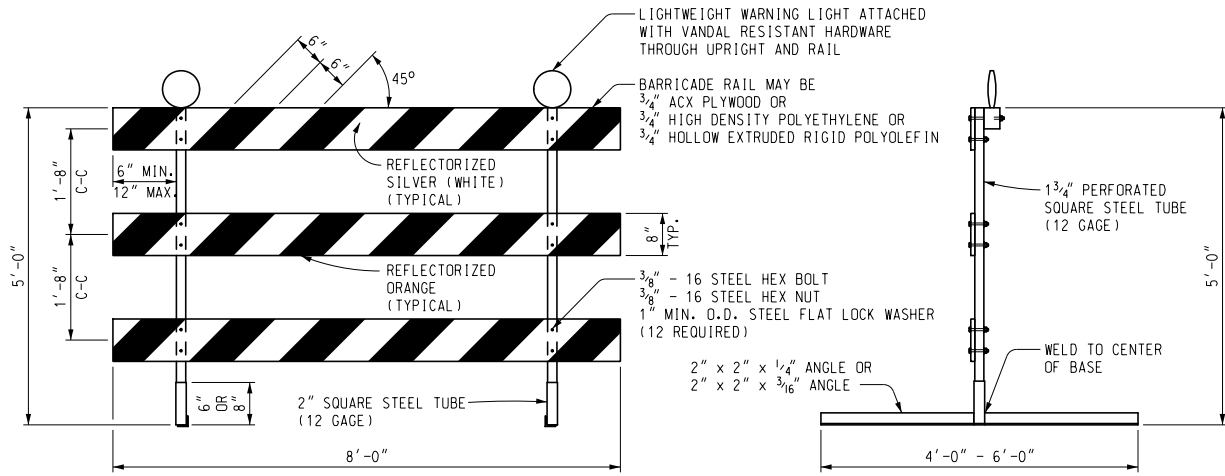
GENERAL NOTES:

1. A MAXIMUM OF TWO POSTS WITHIN A 7 FOOT PATH IS PERMITTED.
2. ALL SIGN POSTS SHALL COMPLY WITH NCHRP 350.
3. ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 42".
4. BRACING OF POST IS NOT PERMITTED.
5. SIGN SHALL BE LEVEL, AND UPRIGHT FOR THE DURATION OF INSTALLATION.
6. ERECT POSTS SO THE SIGN FACE AND SUPPORTS DO NOT VARY FROM PLUMB BY MORE THAN 3/16" IN 3'. PROVIDE A CENTER-TO-CENTER DISTANCE BETWEEN POSTS WITHIN 2 PERCENT OF PLAN DISTANCE.
7. NO MORE THAN ONE SPLICE PER POST, AS SHOWN, WILL BE PERMITTED.
8. POST TYPES SHALL NOT BE MIXED WITHIN A SIGN SUPPORT INSTALLATION.
9. NO VERTICAL JOINTS ARE PERMITTED IN SIGN. NO HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE PERMITTED IN SIGN
10. REMOVE SIGN POSTS AND/OR POST STUBS IN THEIR ENTIRETY WHEN NO LONGER REQUIRED.
11. ALL LABOR, MATERIALS, AND EQUIPMENT, INCLUDING TEMPORARY SUPPORTS REQUIRED TO INSTALL, MAINTAIN, RELOCATE, AND/OR REMOVE THE TEMPORARY SIGN, INCLUDING SUPPORTS, ARE CONSIDERED TO BE INCLUDED IN THE COST OF THE TEMPORARY SIGN.
12. SAW CUTS IN WOOD POSTS ARE TO BE PARALLEL TO THE BOTTOM OF THE SIGN.
13. POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE TOP OF SIGN.
14. TEMPORARY WOOD SUPPORTS DO NOT REQUIRE PRESERVATIVE TREATMENT.

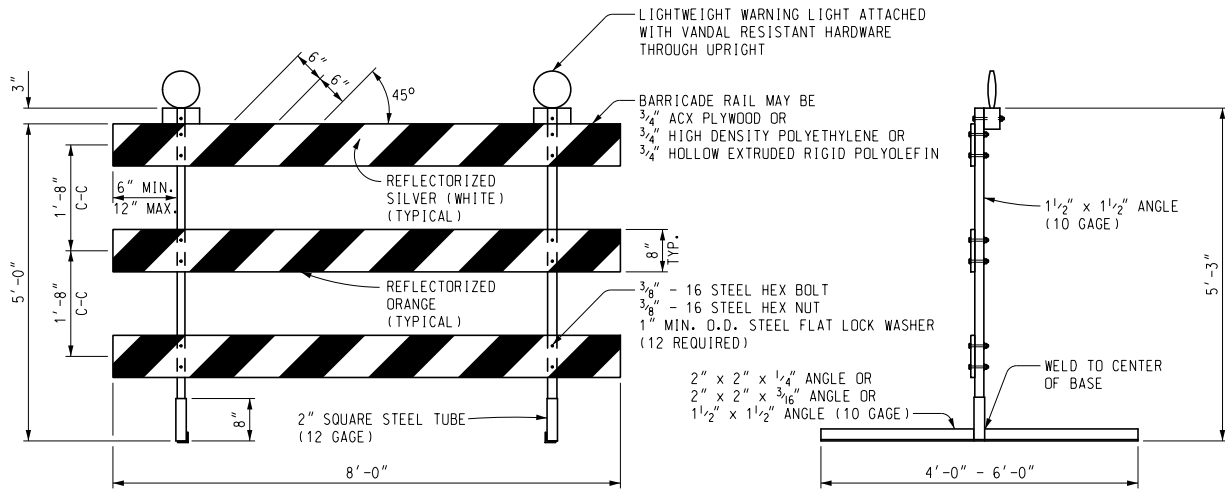
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 11 OF 11
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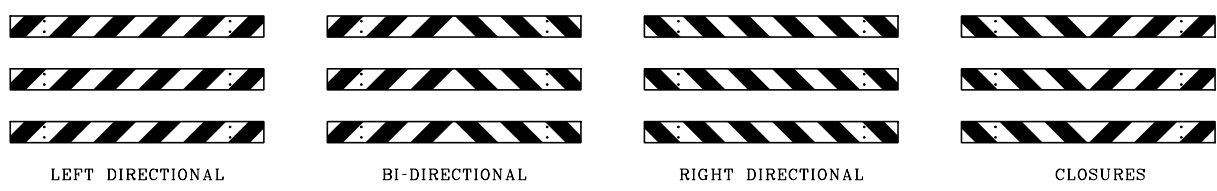
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



FRONT ELEVATION SIDE VIEW  
**PERFORATED SQUARE STEEL TUBE OPTION**



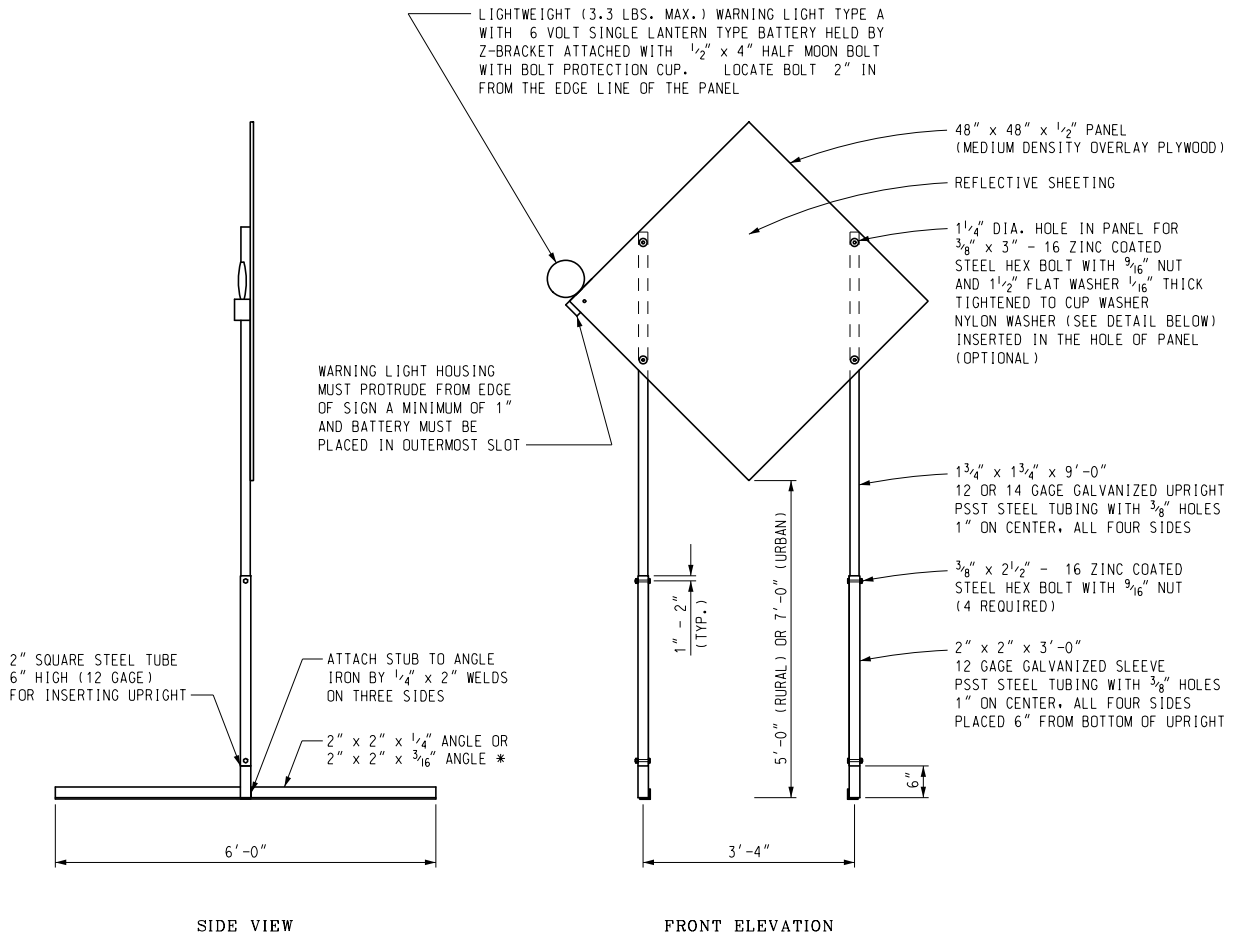
FRONT ELEVATION SIDE VIEW  
**ANGLE IRON OPTION**



**BARRICADE RAIL SHEETING OPTIONS  
 TYPE III BARRICADES**

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at [http://safety.fhwa.dot.gov/roadway\\_dept/road\\_hardware/wzd.htm](http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm)

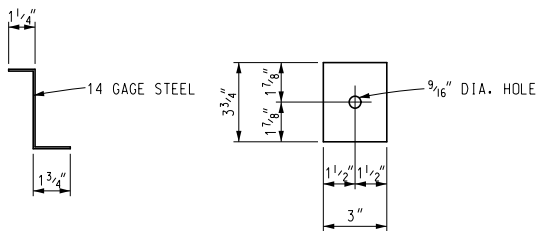
<p>PREPARED BY OPERATIONS FIELD SERVICES</p> <p>DRAWN BY: <u>ECH</u></p> <p>CHECKED BY: <u>MWB</u></p>	<p>DEPARTMENT DIRECTOR Paul C. Ajegba</p> <p>APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF FIELD SERVICES SPECIAL DETAIL FOR</p> <p>Temporary Traffic Control Devices</p>	
	<p>APPROVED BY: _____ (SPECIAL DETAIL) DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT</p>	<p>F.H.W.A. APPROVAL</p>	<p>6/16/22 PLAN DATE</p>



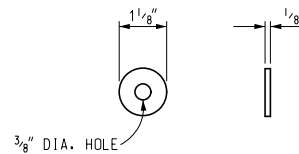
### TEMPORARY SIGN SUPPORT

(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

\* SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END. UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.



Z-BRACKET DETAIL



OPTIONAL NYLON WASHER

Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at [http://safety.fhwa.dot.gov/roadway\\_dept/road\\_hardware/wzd.htm](http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm)

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF FIELD SERVICES SPECIAL DETAIL

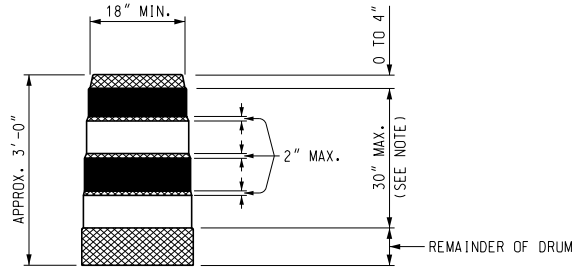
SPECIAL DETAIL  
F.H.W.A. APPROVAL

6/16/22  
PLAN DATE

WZD-125-E

SHEET  
2 OF 3

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



- REFLECTORIZED ORANGE
- REFLECTORIZED WHITE
- NON REFLECTORIZED ORANGE

NOTE:  
 DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

### PLASTIC DRUM

NOTES:

2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARRICADE.

WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT ON TYPE III BARRICADES.

SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.

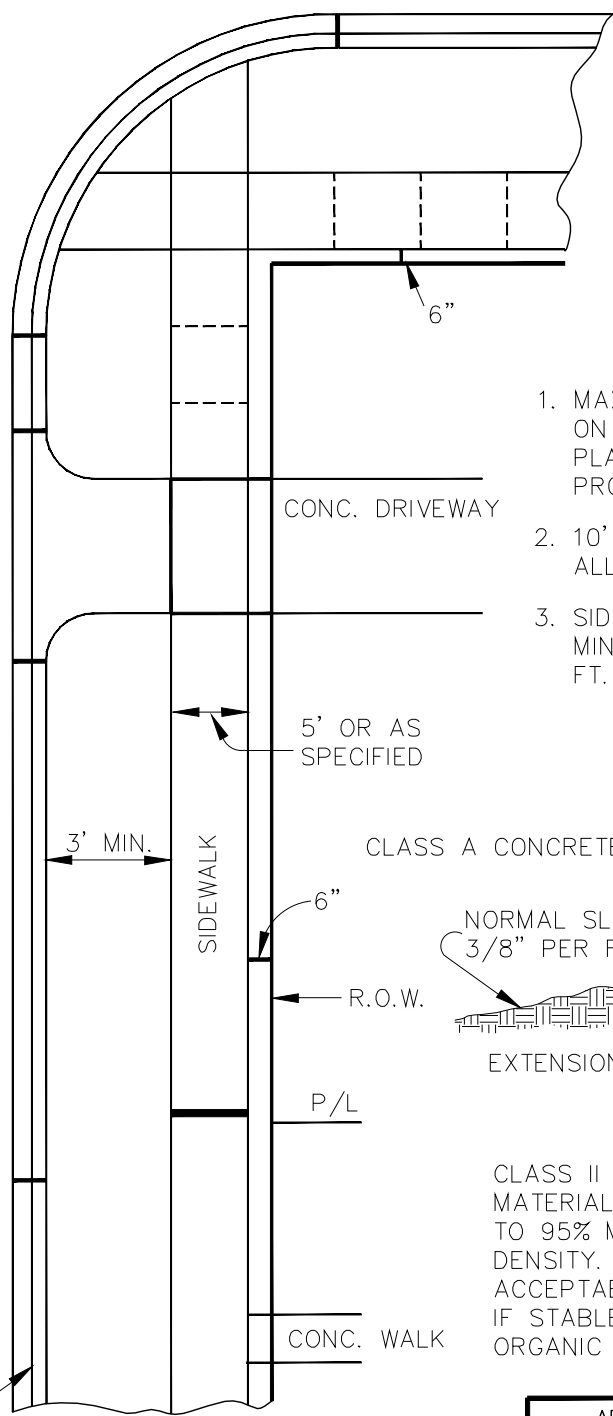
SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

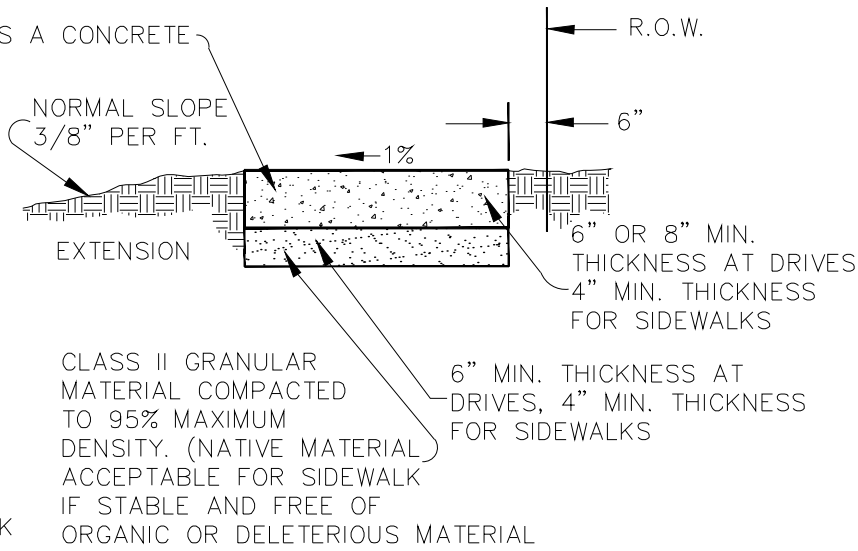
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF FIELD SERVICES SPECIAL DETAIL	(SPECIAL DETAIL) F.H.W.A. APPROVAL	6/16/22 PLAN DATE	WZD-125-E	SHEET 3 OF 3
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



1. MAX. 300' SPACING BETWEEN ALL EXPANSION JOINTS. ON CURB AND GUTTER. EXPANSION JOINTS TO BE PLACED IN SIDEWALKS AT THE EXTENSION OF ALL PROPERTY LINES.
2. 10' NORMAL, 8' MIN. SPACING BETWEEN ALL CURB CONTRACTION JOINTS.
3. SIDEWALK CONTRACTION JOINT SPACING IS 5' MIN. AREA 16 SQ. FT., MAX. AREA 36 SQ. FT.



CURB & GUTTER

**LEGEND:**

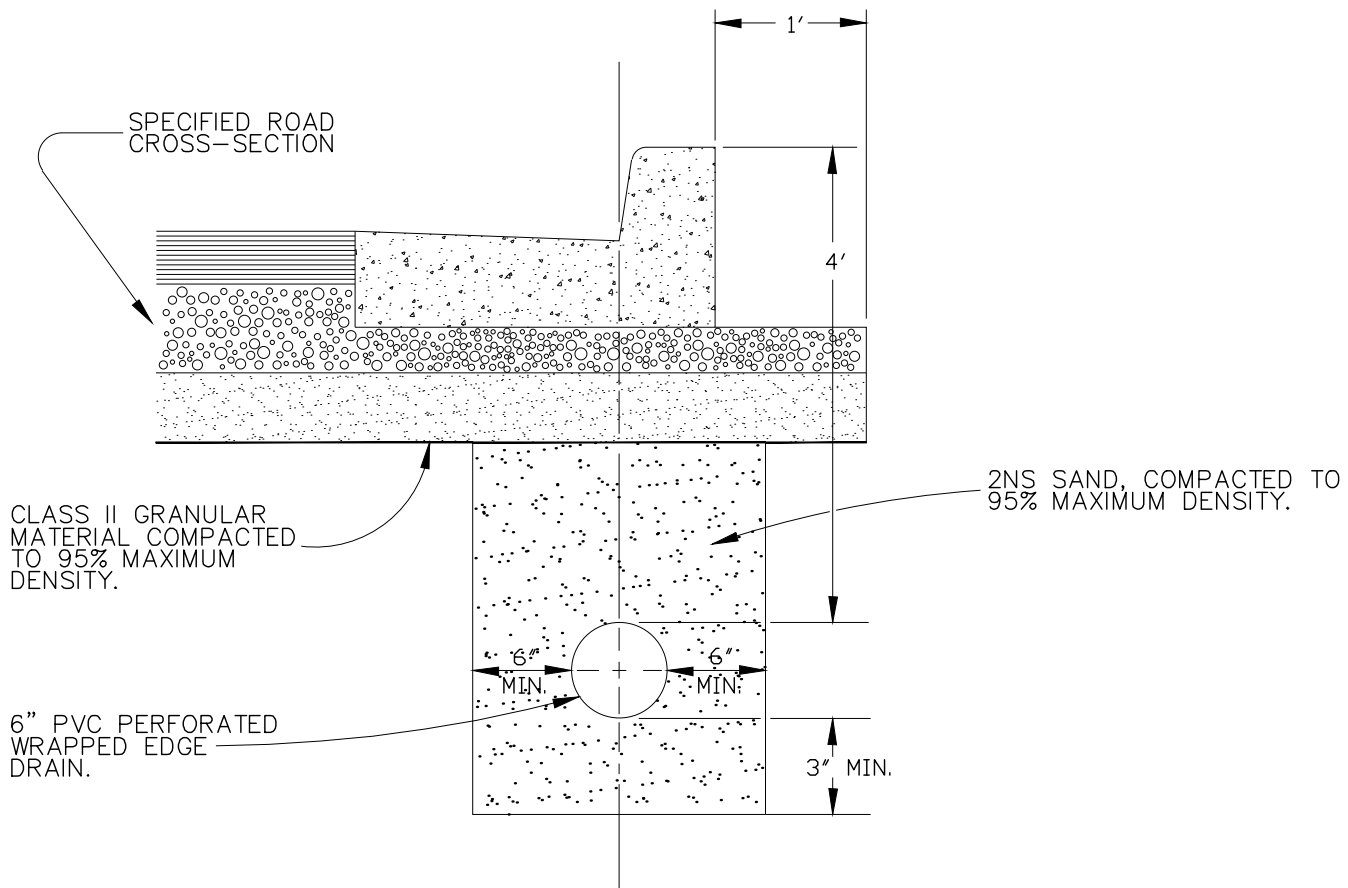
- CONTRACTION JOINTS      - - - - -
- 1/2" EXPANSION JOINTS    ————
- 3/4" EXPANSION JOINTS    ————

ADA COMPLIANCE REVS.	2	DPF	TB/DC/MGN	
TRANSVERSE GRADE REV.	1	NCF	CSS	1-31-94
<b>REVISIONS</b>		<b>REV. NO.</b>	<b>DR. BY</b>	<b>CH. BY</b>
				<b>DATE</b>


**PUBLIC SERVICES AREA  
CITY OF ANN ARBOR**

SIDEWALK & CURB & GUTTER JOINTS

<b>DR. BY</b>	DPF	<b>CH. BY</b>	CSS	<b>DRAWING NO.</b> SD-R-9
<b>SCALE</b>	NONE	<b>DATE</b>	11-6-92	
<b>INCH</b>	0  1			<b>SHEET NO.</b> 1 <b>OF</b> 1



- NOTE: FOR PAVEMENT BASE AND SUBBASE THICKNESS, SEE TYPICAL PAVEMENT CROSS-SECTION.
- NOTE: DENSITY TESTING PER CITY OF ANN ARBOR SPECIFICATIONS.
- NOTE: TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.
- NOTE: ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. STANDARDS

REVISIONS		REV. NO.	DR. BY	CH. BY	DATE
<b>PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR</b>					
TYPICAL EDGEDRAIN TRENCH					
<b>DR. BY</b>	DF	<b>CH. BY</b>	CSS	<b>DRAWING NO.</b>	
<b>SCALE</b>	NONE	<b>DATE</b>	11-6-92	SD-TD-10	
<b>INCH</b>	0  1			<b>SHEET NO.</b> _____ <b>OF</b> _____	



**ATTACHMENT D**  
**PREVAILING WAGE DECLARATION OF COMPLIANCE**

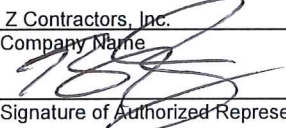
The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

- (a) To pay each of its employees whose wage level is required to comply with federal, state or local prevailing wage law, for work covered or funded by this contract with the City,
- (b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall have been deemed a material breach of the terms of the contract and grounds for termination of same by the City.

Z Contractors, Inc.  
Company Name  
  
Signature of Authorized Representative  
4/25/2023  
Date

Blake Zapczynski, President  
Print Name and Title  
50500 Design Lane, Shelby Township, MI 48315  
Address, City, State, Zip  
(586) 625-8899 bzap@z-contractors.com  
Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

# ATTACHMENT E

## CITY OF ANN ARBOR LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here  No. of employees     

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$15.90/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$17.73/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

**Check the applicable box below which applies to your workforce**

- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Z Contractors, Inc.

Company Name



Signature of Authorized Representative

4/25/2023

Date

Blake Zapczynski, President

Print Name and Title

50500 Design Lane

Street Address

Shelby Township, MI 48315

City, State, Zip

(586) 625-8899 bzap@z-contractors.com

Phone/Email address

## ATTACHMENT F

# CITY OF ANN ARBOR LIVING WAGE ORDINANCE

**RATE EFFECTIVE APRIL 30, 2023 - ENDING APRIL 29, 2024**

**\$15.90** per hour

If the employer provides health care benefits\*

**\$17.73** per hour

If the employer does **NOT** provide health care benefits\*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

## **ENFORCEMENT**

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

\* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

**The Law Requires Employers to Display This Poster Where Employees Can Readily See It.**

**For Additional Information or to File a Complaint contact  
Colin Spencer at 734/794-6500 or [cspencer@a2gov.org](mailto:cspencer@a2gov.org)**

Revised 2/1/2023



**ATTACHMENT G**

**Vendor Conflict of Interest Disclosure Form**

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

<b>Conflict of Interest Disclosure*</b>	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr style="border: 0; border-top: 1px solid black;"/> <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)

\*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

<b>I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:</b>		
Z Contractors, Inc.	(586) 625-8899	
<b>Vendor Name</b>	<b>Vendor Phone Number</b>	
	4/25/2023	Blake Zapczynski
<b>Signature of Vendor Authorized Representative</b>	<b>Date</b>	<b>Printed Name of Vendor Authorized Representative</b>

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, [procurement@a2gov.org](mailto:procurement@a2gov.org)

# ATTACHMENT H

## DECLARATION OF COMPLIANCE

### Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

Z Contractors, Inc.

Company Name

Signature of Authorized Representative

4/25/2023

Date

Blake Zapczynski, President

Print Name and Title

50500 Design Lane, Shelby Township, MI 48315

Address, City, State, Zip

(586) 625-8899      bzap@z-contractors.com

Phone/Email Address

**Questions about the Notice or the City Administrative Policy, Please contact:**  
Procurement Office of the City of Ann Arbor  
(734) 794-6500

## ATTACHMENT I

### CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.  
You can review the entire ordinance at [www.a2gov.org/humanrights](http://www.a2gov.org/humanrights).

**Intent:** It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

**Discriminatory Employment Practices:** No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

**Discriminatory Effects:** No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

**Nondiscrimination by City Contractors:** All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

**Complaint Procedure:** If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at [www.a2gov.org/humanrights](http://www.a2gov.org/humanrights). Then submit it to the Human Rights Commission by e-mail ([hrc@a2gov.org](mailto:hrc@a2gov.org)), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at [hrc@a2gov.org](mailto:hrc@a2gov.org).

**Private Actions For Damages or Injunctive Relief:** To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND  
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.