

- **Specifications & Contract**
- **Documents**
- Iron Belle Trail Section J and K



Van Buren Township  
Elizabeth Renaud  
46425 Tyler Road  
Van Buren Twp., MI 48111  
P: 734-699-8900

PEA Group  
Project No. 2020-0095 and 2022-0652  
Jeff Smith, PLA, LEED AP  
7927 Nemco Way, Suite 115  
Brighton, MI 48116  
P: 517-546-8583



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**INVITATION FOR BIDS**

**VAN BUREN TOWNSHIP  
WAYNE COUNTY, MICHIGAN**

**IRON BELLE TRAIL SECTION J and K  
JOB NO. 2020-0095 and 2022-0652**

Sealed proposals will be received by the Van Buren Township at the office of the Township Clerk, 46425 Tyler Road, Van Buren, Michigan 48111 until **2:00 p.m.** local time (EST), on **March 12, 2024** for construction of this project. Proposals are to be delivered to the Township Clerk's Office in a sealed envelope marked on the outside as described in the Instruction to Bidders.

*Project Description:*

The project consists of constructing a 7' wide concrete sidewalk and is located along East Huron River to Metropolitan Parkway. The project also consists of construction of a 10' wide asphalt path to connect the existing path in Lower Huron Metropark to the newly constructed sidewalk. The project includes the development of approximately 25,600 square feet of 7' wide concrete sidewalk and 110 linear feet of 10' wide asphalt pathway.

The drawings and specifications under which the work is to be performed are on file and may be examined at the following locations:

Van Buren Township  
46425 Tyler Road  
Van Buren Twp., MI 48111

Or

PEA Group  
7927 Nemco Way, Suite 115  
Brighton, MI 48116

Digital copies of the bid package (drawings and specifications) are accompanied with this invitation via email. Hard copies may be obtained from **PEA Group, 7927 Nemco Way #115, Brighton, Michigan 48116** at a cost of \$150.00 to the bidder.

Each proposal shall be accompanied by a certified check or acceptable bid bond for a sum not less than five percent (5%) of the proposal amount. All questions regarding clarification or interpretation of the documents shall be directed to Jeffrey Smith, PLA, LEED AP, of PEA Group by the following means: Office: (517) 546-8583, Fax: (248) 689-1044, and e-mail: [jsmith@peagroup.com](mailto:jsmith@peagroup.com).

The right is reserved by the Owner to accept any proposal, to reject any proposal, and to waive irregularities in proposals. No bid may be withdrawn after the above date and time for receiving bids for a period of one-hundred-twenty (120) days.

Van Buren Twp, MI  
Leon Wright, Township Clerk

## INSTRUCTIONS TO BIDDERS

### 1. SCOPE OF WORK

The work under this Contract shall consist of the items contained in the Proposal, including all incidentals necessary to fully complete the project in accordance with the Contract Documents.

This project is located in Van Buren Township.

Please note the following requirements:

- A. State or federal funds are not being used to assist in construction and relevant State or federal requirements will not apply.
- B. Communities must comply with all requirements of 1976 PA 453 (Elliott-Larsen Civil Rights Act) and 1976 PA 220 (Persons with Disabilities Civil Rights Act), as amended. In accordance with these laws, all contracts must contain a covenant that “The contractor and any subcontractors shall not 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 race, color, religion, national origin, age, sex, height, weight, marital status or a disability that is unrelated to the individual’s ability to perform the duties of a particular job or position.”

### 2. RECEIPT OF OPENING OF BID PROPOSALS

- A. Sealed bid proposals will be received as indicated in the Invitation for Bids.
- B. The Proposal shall be submitted only on forms provided by the Owner. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully executed when submitted.
- C. Proposals shall be enclosed in a sealed envelope marked:

Office of the Township Clerk  
Van Buren Township  
46425 Tyler Road  
Van Buren Twp, Michigan 48111

Project: Iron Belle Trail, Van Buren Section J and K  
Proposal Deadline: **2:00 p.m. on March 12, 2024**  
Attention: Township Clerk

and shall be delivered to the Office of the Township Clerk on or before the time specified in the Invitation for Bids.

Each sealed envelope shall bear on the outside the Bidder’s name and address.

- D. Proposals shall be made in full conformity with the instruction, requirements and conditions set forth in the Instructions to Bidders and in the Drawings, Specifications and other Contract Documents. Bids are firm and no bid may be withdrawn for a period of 120 days after opening of bids.
- E. Any bid received at the office designated in the solicitation after the exact time specified for receipt will not be considered and will be returned to the bidder unopened. This material requirement is not subject to waiver by Owner.
- F. Bidders are strongly encouraged to hand-deliver their bids to the Office of the Township Clerk. Telegraphic and facsimile bids shall not be considered. Bids delivered by certified, registered or express mail will be accepted, however, subject to the following conditions:
- 1) If by express mail, a bid must be postmarked no later than 5:00 pm at the place of mailing two working days prior to the date specified for receipt of bids. The term working days excludes weekends and holidays.
  - 2) If by certified or registered mail, a bid must be postmarked no later than five (5) calendar days before the date specified for receipt of bids.
  - 3) Before 12:00 p.m. local time, on the date specified for receipt of bids, bidders who did not hand deliver their bids, must confirm via telephone with the Township Clerk, or his designee, that their bids have been received by the Office of the Township Clerk.
- G. If a dispute later arises regarding the timeliness of a late bid which is sent either by registered or certified mail, the only acceptable evidence to establish the date of mailing of a late bid is a postmark both on the bid envelope or wrapper and on the original receipt from the U.S. Postal Service. Both postmarks must show a legible date, or the bid shall be deemed to have been mailed late. The term postmark means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed on the date of mailing by employees of the U.S Postal Service. Therefore, Bidders should request that the postal clerk place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope.
- H. The only acceptable evidence to establish the date of mailing of a late bid sent by express mail is the date entered by the express mail receiving clerk on the express mail label and the postmark on the envelope or wrapper and on the original receipt from the express mail service. Postmark has the same meaning as set forth above. Therefore, bidders should request that the express mail clerk place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope.

### 3. PROJECT TIMELINE

It is agreed that the Contractor shall, upon execution of this contract, begin work within ten (10) consecutive calendar days from the date of the notice to proceed, and shall prosecute the work in such a manner so as to complete the installation of all proposed improvements by **December 1, 2024.**

**4. CONSTRUCTION CONDITIONS**

It is required that each bidder will examine the drawings and specifications for this work and make a personal examination of the site of the proposed work and its surroundings. It is also expected that he will obtain first-hand information concerning the available facilities for receiving, transporting, handling and storing construction equipment and materials and concerning other local conditions that may affect this work.

**5. QUALIFICATIONS OF BIDDERS**

Any bidder being considered for award of this contract shall be subject to the following:

- A. The Bidder declares that he has had prior experience in the type of work required by the Contract Documents and that he has the necessary finances, personnel and working organization and equipment available to execute the proposed work in accordance with the requirements of the Contract Documents. The Bidder further declares that he will furnish proof of these qualifications and work performance references. The Bidder shall provide a resume and references to the Owner demonstrating the Bidder's ability to satisfy the requirements as set forth in these Contract Documents.
- B. All bidders must sign the proposal section titled "Progress Schedule" indicating the calendar days within which the work must be completed. Also, within ten (10) days after the contract is awarded by the Owner, the Contractor shall submit to the Engineer four (4) copies of a Construction Progress Schedule. Such Schedule shall comply with the requirements set forth in Item 35 PROGRESS OF WORK of the GENERAL CONDITIONS.
- C. Upon request, the Owner may require the submission of any additional information necessary and the Contractor shall attend a pre-award conference to satisfy the Owner that the bidder is adequately prepared to fulfill the Contract.

**6. NAME, ADDRESS AND LEGAL STATUS OF BIDDER**

The name and legal status of the bidder, that is, as a corporation, limited liability company, partnership, sole proprietor, or an individual shall be stated in the proposal. A corporation bidder shall name the state in which its Articles of Incorporation are held, and must give the title of the official having authority, under the by-laws, to sign contracts; a partnership bidder shall give the full names and addresses of all partners. Anyone signing a proposal as an agent of another or others must submit with his proposal legal evidence of his authority to do so. The place of residence of the bidder, or the office of others in the case of a firm or company with county and state, must be given after his signature.

7. **BID DEPOSIT**

Each proposal must be accompanied by a bid deposit in the form of an acceptable bid bond or a certified check or cashier's check drawn upon a US bank for a sum of not less than five percent (5%) of the amount of the proposal as a guarantee on the part of the bidder that he will, if called upon to do so, enter into contract in the attached form, to do the work covered by such proposal and at the prices stated therein and to furnish acceptable surety for its faithful and entire fulfillment. Such bid bond, certified check or cashier's check shall be made out to the Owner, and shall be subject to the conditions specified in the contract documents.

**ANY PROPOSAL NOT ACCOMPANIED BY THE SPECIFIED BID DEPOSIT WILL BE CONSIDERED NON-RESPONSIVE AND WILL NEITHER BE READ NOR CONSIDERED.**

- A. The bid deposit checks (or bid bonds if applicable) of all except the three lowest bidders may be obtained at the office of the Engineer (PEA Group) between the hours of 9:00 A.M. and 4:00 P.M. on the normal working day, the day after the opening of bids after which time said checks or bid bonds will be mailed.
- B. The bid deposit checks (or Bid Bond if applicable) of the three lowest bidders will be returned within three (3) working days after the Owner and the accepted bidder have entered into contract or, if the contract has not been executed within the time limits as specified in paragraph #11, IB-5, after the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

8. **FORM OF PROPOSAL**

All proposals must be made and signed by the bidder in the form attached hereto and without removal from the bound specifications. Additional copies of the Proposal Form may be obtained from the Township Engineer or Owner upon request.

All prices stated in the proposal must be plainly written in ink in legible figures or typed. Illegibility of any figure in the proposal may be sufficient cause for rejection of the proposal by the Owner.

9. **BASIS OF PROPOSAL**

Proposals are solicited on the basis of unit prices for each type of work as set forth in the form of Proposal. Proposals will be compared on the basis of the quantities stated therein and the prices offered for each item. Written unit prices in words shall be used to determine the amount of the bid.

**10. EXPLANATION TO BIDDERS BY ADDENDUM**

- A. Neither the Owner nor the Township Engineer will give verbal answer to inquiries regarding the meaning of the drawings or specifications, or give verbal instructions previous to the award of the contract. Any verbal statements regarding same by any person, previous to the award, shall be unauthoritative.
- B. Explanations desired by bidders shall be requested of the Owner or Township Engineer in writing and if explanations are necessary, a reply will be made in the form of an addendum, a copy of which will be forwarded to each bidder.
- C. Addenda issued to bidders shall become a part of the specifications and contract documents, and all proposals shall include the work described in the addenda. The bidders are hereby instructed to acknowledge receipt of all addenda on page P-1 of the Proposal.
- D. No inquiry received within three (3) days of the date fixed for the deadline of bids will be given consideration.
- E. Failure of the Owner to send, or of the bidder to receive, any such interpretations shall not relieve the bidder from obligation under his bid as submitted.
- F. It is the Contractor's responsibility to track addendums. Addendums will be posted at the same locations as the original bid notification including MITN and the Township Website.

**11. AWARD AND EXECUTION OF CONTRACT**

The Contract shall be deemed as having been awarded when formal notice of award shall have been duly served by the Owner upon the bidder.

The bidder to whom the contract shall have been awarded will be required to execute the Agreement in the form attached hereto and to furnish Surety and Insurance Certificates, all as required. In case of his refusal or failure to do so within ten (10) calendar days after award, he will be considered to have abandoned all his rights and interests in the award, and his bid deposit may be declared forfeited to the Owner as liquidated damages and the work may be awarded to another bidder.

**12. GUARANTY BONDS**

In addition to the bid bond or bid deposit, the contractor shall furnish the Owner the following bonds (templates provided in these contract documents) prior to the contract being executed:

- A. The Contractor shall furnish a surety bond in an amount at least equal to 100 percent of the contract price as security for faithful performance of this contract.
- B. The Contractor shall also furnish a separate surety bond in an amount at least equal to 100 percent of the contract price as security for payment of all persons performing labor, furnishing materials and/or renting equipment in connection with this contract.

- C. The Contractor shall furnish a two (2) -year Maintenance and Guarantee Bond in an amount at least equal to 100 percent (100%) of the contract price.
- D. Premium for the three bonds heretofore described shall be paid by the Contractor.
- E. The form of the bonds shall be as appended herewith.
- F. The Contractor shall provide liability insurance and bond in an amount specified by the Owner (Township) pursuant to and in accordance with MCL Section 129.201 et seq., MSA Section 5.2321 (1) et seq. The Contractor shall provide satisfactory evidence that the corporate surety and the insurer are licensed and/or approved to conduct business in the state of Michigan. Such evidence shall include a certified copy of the certificate of authority issued by the Insurance Licensing Division of the Insurance Bureau.

**13. INSURANCE**

Proof of all required insurances, as stated in Section 47 of the General Conditions shall be provided with the bid proposal. For all contracts over \$600, also include a completed W9. All sole proprietors must submit a completed and notarized Sole Proprietor Form.

**14. RIGHT TO ACCEPT, TO REJECT AND TO WAIVE DEFECTS**

The Owner reserves the right to accept any proposal, to reject any or all proposals, and to waive defects or irregularities in any proposal. In particular, any alteration, erasure or interlineation of the Contract Documents and of the Form of Proposal shall render the accompanying proposal irregular and subject to rejection by the Owner.

**15. WITHDRAWAL OF BIDS**

Any bidder who has submitted a proposal to the Owner may withdraw his bid in writing received by the Township Clerk at any time prior to the scheduled time for the receipt of bids. Unless otherwise stated in the Supplemental Specifications contained herein, no bidder may withdraw his bid after the time stated in the advertisement for opening bids for a period of one-hundred-twenty (120) days thereafter.

**16. TAXES**

The Contractor shall include and be deemed to have included in his bid and contract price all Michigan sales and use taxes currently imposed by legislative enactment and as administered by the Michigan Department of Revenue on the bid date.

If the Contractor is not required to pay or bear the burden, or obtains a refund or drawback, in whole or in part, of any Michigan sales or use tax, interest or penalty thereon, which was required to be and was deemed to have been included in the bid and contract price, the contract price shall be reduced by the amount thereof and the amount of such reduction, whether as a refund or otherwise, shall inure solely to the benefit of Van Buren Charter Township.

**17. DRAWINGS AND CONTRACT DOCUMENTS**

The Bidding Documents include the Advertisement for Bids, Instruction to Bidders, Bid Form, General Conditions, Contract Form, Bonds, Technical Specifications, and Drawings, including any Addenda issued prior to receipt of bids.

The drawings upon which the proposal shall be based consist of a title sheet and other plan-profile and detail sheets numbered as follows:

*Iron Belle Trail Van Buren Section J Drawings:*

Project No. 20-0095 – Drawings Numbered C-0.0 thru C-5.3 and any other sheets added by an addendum issued by Owner or Township Engineer.

And

*Iron Belle Trail Van Buren Section K Drawings:*

Project No. 2022-0652 - Drawings Numbered C-0.0 thru C-5.2, and T-1.0-T-25.0 and any other sheets added by an addendum issued by Owner or Township Engineer.

**18. CONSTRUCTION PERMITS, ROAD PERMITS, MISCELLANEOUS PERMITS**

The project requires construction work within the following jurisdictions:

Van Buren Township  
Wayne County Environmental Services (SESC)  
Wayne County Department of Public Services (Permits Office)

The Contractor shall conform to the various requirements of the jurisdictional agency within which work is being performed and shall obtain, at his own expense, all permits required.

The Wayne county Environmental Services Department has jurisdiction over work at the following locations: All Erosion Control.

The Wayne County Department of Public Services has jurisdiction over any work performed within public road rights-of-way.

**NOTICE TO BIDDERS**

**TO ALL PROSPECTIVE BIDDERS**

**PLEASE COMPLETE ALL PARTS  
OF YOUR BIDDING DOCUMENTS  
INCLUDING ACKNOWLEDGMENT OF  
RECEIPT OF ANY ISSUED ADDENDA**

**IMPROPERLY SIGNED BIDS  
OR FAILURE TO COMPLETE ALL SECTIONS  
OF THE DOCUMENT  
MAY RESULT IN THE REJECTION OF YOUR BID**

**BID FORM  
FOR THE CONSTRUCTION OF THE  
IRON BELLE TRAIL SECTION J and K  
VAN BUREN TOWNSHIP**

**CHARTER TOWNSHIP OF VAN BUREN  
WAYNE COUNTY, MICHIGAN**

**TO: Charter Township of Van Buren  
46425 Tyler Road  
Van Buren, Michigan 48111**

The undersigned, having familiarized themselves with the local conditions affecting the cost of the work and with the Contract Documents, including the Invitation to Bid, Notice to Bidders, Instructions to Bidders, Proposal, The Agreement, Bonds, General Conditions, all Specifications, Addendum and Construction Drawings on file in the office of the Charter Township of Van Buren Michigan 48111, and the Consulting Engineers, hereby proposes to perform all work required to be performed and provide and furnish all labor, materials, necessary tools and equipment, and all utility and transportation services necessary to perform and complete in a workmanlike manner all work required for construction of the following:

**IRON BELLE TRAIL, VAN BUREN TOWNSHIP, SECTION J and K**, in Wayne County, all in accordance with the contract documents, drawings and specifications as prepared by:

**PEA Group  
7927 Nemco Way #115  
Brighton, MI 48116**

Including Addendum Nos. (if applicable):

Addendum No. 1 \_\_\_\_\_, Dated \_\_\_\_\_

Addendum No. 2 \_\_\_\_\_, Dated \_\_\_\_\_

**BID FORM**  
**IRON BELLE TRAIL SECTION J and K**  
**CHARTER TOWNSHIP OF VAN BUREN, WAYNE COUNTY, MICHIGAN**

**BASE BID:** The undersigned, referred to as Bidder, having examined the Bidding Documents and the Project site, hereby proposes to furnish all labor, materials, tools, equipment, services, and insurance required to complete the Work in connection with the contract, in accordance with the bidding documents, for the **BASE BID AMOUNT** of:

\_\_\_\_\_ Dollars  
(\$\_\_\_\_\_),

(the amount is shown in both words and numbers. In case of discrepancy, the words will govern; typical throughout.)

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## BID FORM

### Section 1 – Schedule of Prices

Project: Iron Belle Trail Van Buren Township Section J and K

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
1.	Wayne County Permits	DOL	1	\$ 30,000	\$ 30,000
2.	Mobilization (5% Max)	LSUM	1	\$ _____	\$ _____
3.	Audio Video File Special	LSUM	1	\$ _____	\$ _____
4.	Contractor Staking	LSUM	1	\$ _____	\$ _____
5.	Clearing	LSUM	1	\$ _____	\$ _____
6.	Shared Use Path Grading	LFT	4160	\$ _____	\$ _____
7.	Utility Coordination	LSUM	1	\$ _____	\$ _____
8.	Sign Rem	EA	1	\$ _____	\$ _____
9.	Sign, Rem Salv	EA	4	\$ _____	\$ _____
10.	Sawcut, Horizontal	LFT	115	\$ _____	\$ _____
11.	Sawcut	LFT	55	\$ _____	\$ _____
12.	Guard Rail, Rem	LFT	420	\$ _____	\$ _____
13.	Guy Rem	EA	3	\$ _____	\$ _____
14.	Controller and Cabinet Rem	EA	1	\$ _____	\$ _____
15.	Fence, Rem	LFT	15	\$ _____	\$ _____
16.	Erosion Control, Silt Fence	LFT	3550	\$ _____	\$ _____
17.	Erosion Control, Inlet Protection Fabric Drop, Modified	EA	10	\$ _____	\$ _____
18.	Rip Rap Plain	SYD	16	\$ _____	\$ _____
19.	Maintenance Gravel, Special	TON	20	\$ _____	\$ _____
20.	Subgrade Undercutting, Class II, Special	CYD	100	\$ _____	\$ _____
21.	Subgrade Undercutting, 21AA, Special	CYD	100	\$ _____	\$ _____
22.	Subgrade Undercutting, 6A, Special	CYD	100	\$ _____	\$ _____
23.	Shared Use Path, 6" Aggregate, Modified	SYD	150	\$ _____	\$ _____
24.	2" Asphalt 4E1	SYD	130	\$ _____	\$ _____
25.	2" Asphalt 5E1	SYD	130	\$ _____	\$ _____
26.	Sidewalk, Conc 4"	SFT	23160	\$ _____	\$ _____
27.	Sidewalk Ramp, Conc 6"	SFT	130	\$ _____	\$ _____
28.	Sidewalk, Conc 8"	SFT	1005	\$ _____	\$ _____
29.	6" Underdrain Fdn	LFT	211	\$ _____	\$ _____
30.	Granular Material, CLII	CYD	310	\$ _____	\$ _____
31.	Detectable Warning Surface	LFT	40	\$ _____	\$ _____
32.	Sanitary Structure Cover, ADJ	EA	1	\$ _____	\$ _____
33.	Drainage Structure Cover, ADJ	EA	2	\$ _____	\$ _____

Total This Page:

\$ \_\_\_\_\_

(Also to be entered on page BF-4)

## BID FORM

### Section 1 – Schedule of Prices

Project: Iron Belle Trail Van Buren Township Section J & K

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
34.	Aggregate Base, 21AA, 8"	SYD	90	\$ _____	\$ _____
35.	3" Topsoil Surface, Furn	SYD	4400	\$ _____	\$ _____
36.	Seeding Mixture 6	SYD	4400	\$ _____	\$ _____
37.	Mulch Blanket	SYD	4400	\$ _____	\$ _____
38.	Pedestal, Alum	EA	2	\$ _____	\$ _____
39.	Pedestal, Fdn	EA	2	\$ _____	\$ _____
40.	Pushbutton and Sign	EA	2	\$ _____	\$ _____
41.	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	EA	2	\$ _____	\$ _____
42.	Wood Pole, FT UP, TS Cable Pole	EA	2	\$ _____	\$ _____
43.	Conduit, Directional Bore, 1. 3 inch	FT	90	\$ _____	\$ _____
44.	Conduit, DB. 1, 1 ½ inch	LFT	55	\$ _____	\$ _____
45.	Hh, Round	EA	3	\$ _____	\$ _____
46.	Pole Guy	EA	3	\$ _____	\$ _____
47.	Global Positioning System Module	EA	1	\$ _____	\$ _____
48.	Cabinet NEWA Type	EA	1	\$ _____	\$ _____
49.	Controller NEWA ATC Type	EA	1	\$ _____	\$ _____
50.	Pavt Markg., Waterborne, Hike/Bike Trail	LSUM	1	\$ _____	\$ _____
51.	Pavt. Markg., Waterborne, Roadway	LSUM	1	\$ _____	\$ _____
52.	Safety Fence	LFT	485	\$ _____	\$ _____
53.	Signs, Permanent, Complete	LSUM	1	\$ _____	\$ _____
54.	Boulder Retaining Wall	SFT	195	\$ _____	\$ _____
55.	Modular Block Retaining Wall	SFT	220	\$ _____	\$ _____
56.	Temporary Traffic Control for Construction Zone Operations	LSUM	1	\$ _____	\$ _____
57.	Guardrail, Type B	LFT	440	\$ _____	\$ _____
58.	Guardrail, Terminal Type "MSKT"	EA	3	\$ _____	\$ _____
Total This Page:				\$ _____	_____
Total From Page BF-3				\$ _____	_____
Total Base Bid:				\$ _____	_____

## ADDITIONAL REQUIREMENTS

The undersigned affirms that in making such proposal neither he nor any company that he may represent nor anyone in behalf of him or company directly or indirectly has entered into any combination or collusion, undertaking or agreement with any bidder or bidders to maintain the prices of said work, or any compact to prevent any other bidder or bidders from bidding on said contract or work, and further affirms that such proposal is made without regard or reference to any other bidder or proposal and without any agreement or understanding or combination either directly or indirectly with any other person or persons with reference to such bidding in any way or manner whatsoever.

The undersigned hereby agrees that if the foregoing proposal shall be accepted by the Owner, he will, within ten (10) consecutive calendar days after receiving formal notice of award, enter into a contract with Owner, in the appropriate form, to furnish the labor, materials, equipment, tools and construction equipment necessary for the full and complete execution of the work at and for the price named in his proposal, and he will furnish to the said Owner and to the State of Michigan, such surety for the faithful performance of such contract and for all labor expended thereon as shall be approved and accepted by the said Owner.

The undersigned agrees to complete all of the work items, necessary items and incidental items whether noted on the plan or required in the specifications in a workmanlike manner and does include in the proposal bid items compensation covering all cost to perform the work.

Further the undersigned agrees on the basis of this base bid proposal and to accept as final payment this amount for all work necessary to complete the project.

Extra work not covered by the schedule ordered by the Engineer or required to complete the project will be agreed upon in writing by the Contractor and Engineer in accordance with the General Conditions which the Contractor agrees to accept as full compensation as written.

The undersigned bidder does hereby represent and warrant that the total price bid in this Proposal is a complete and correct statement of the price bid for the work included in said Proposal, and further that all other information given in or furnished with this said Proposal is complete, correct, and submitted as intended by him. He does hereby waive any right or claim he may now have or that may hereafter accrue to him by reason of errors, mistakes, or omissions made by him in said Proposal, to refuse to execute the Contract if awarded to him, or to demand the return of the bid deposit, or to be relieved from any of his obligations required by said Proposal.

The undersigned attaches hereto, as a bid deposit, a (certified check) or (cashier's check) or (bid bond) in the sum of \$ \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) as required in the Instruction to Bidders and the undersigned agrees that in case he shall fail to fulfill his obligations under the foregoing Proposal and agreement, the said Owner may determine that the undersigned has abandoned his rights and interests in such Proposal and that the bid deposit accompanying his proposal has been forfeited to the said Owner; but otherwise, the said bid deposit shall be returned to the undersigned upon the execution of such contract and the acceptance of his bonds and insurance coverage, or upon the rejection of his Proposal as provided in the Instructions to Bidders.

In the interest of expediting the award of this contract, the undersigned shall comply with Item 5.

**Qualifications of Bidders** of the **INSTRUCTIONS TO BIDDER** within the time limits specified therein to show that he is qualified and is adequately prepared to perform the work under the Proposed Contract for which this proposal is offered.

In submitting this bid, it is understood and accepted that the Owner expressly reserves and has the right to, in its sole and exclusive discretion, reject any and all bids, withdraw its request for proposals and/or not award the contract to any of the bidders.

Dated and signed at \_\_\_\_\_,

State of \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Name of Bidder: \_\_\_\_\_

Signature: \_\_\_\_\_

Title of Signer: \_\_\_\_\_

Business Address  
of Bidder: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone No.: \_\_\_\_\_

**BID FORM SUPPLEMENTAL  
FOR THE CONSTRUCTION OF THE**

**IRON BELLE TRAIL SECTION J and K  
VAN BUREN TOWNSHIP  
WAYNE COUNTY, MICHIGAN**

**TO: Van Buren Township  
46425 Tyler Road  
Van Buren Twp., MI 48111**

In accordance with the Instruction to Bidders and Bid Form, we include the Appendices to Bid Form Supplements listed below. The information provided shall be considered an integral part of the Bid Form.

The following Appendices are attached to this document:

Appendix A - List of Subcontractors: Include names of major Subcontractors and portions of the Work each Subcontractor will perform.

Appendix B - List of Alternates: Include cost variation to Bid Price applicable to the Work described on the construction plans.

Appendix C – Time Alternate: If the bidder takes exception to the time stipulated in the proposal, it is requested to stipulate its proposed time for performance of work.

**BID FORM SUPPLEMENTS SIGNATURES**

The Corporate Seal of

\_\_\_\_\_  
(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

\_\_\_\_\_  
(Authorized signing officer Title)

(Seal)

\_\_\_\_\_  
(Authorized signing officer Title)

(Seal)

APPENDIX A - LIST OF SUBCONTRACTORS

For purposes of this contract, a Major Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services. Major subcontractors shall be listed if the work planned to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder shall identify the work to be subcontracted to each major subcontractor.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
---	-------------	---------------

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the contract.

---

Signature of Authorized Representative of Bidder

APPENDIX B – MATERIAL AND EQUIPMENT ALTERNATES

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

If the Contractor wishes to quote alternate items for consideration by the Van Buren Township, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
--------------------	--------------------	--------------------------

If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the contract.

\_\_\_\_\_  
Signature of Authorized Representative of Bidder

APPENDIX C – TIME ALTERNATIVE

If the Bidder takes exception to the time stipulated in the proposal, Time of Completion, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the contract.

\_\_\_\_\_  
Signature of Authorized Representative of Bidder

## CONTRACT

**THIS CONTRACT**, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between **Van Buren Township, 46425 Tyler Road, Van Buren Township, Michigan 48111** Party of the First Part, hereinafter called the Owner, and \_\_\_\_\_, Party of the Second Part, hereinafter called the Contractor.

**WITNESSETH**, that the Contractor and the Owner, for the considerations hereinafter named, agree as follows:

### ARTICLE I - THE WORK

It is agreed that the Contractor shall furnish all labor, materials, and equipment, and perform all of the work described, shown and called for in the Contract Documents and on the Construction Drawings for the **Iron Belle Trail Section J and K** (also referred to as the “Drawings” and “Contract Drawings”), in the Specifications entitled -

Specifications & Contract Documents  
**Iron Belle Trail Section J and K**  
Van Buren Township, Michigan

(both of which Drawings and Specifications have been prepared by PEA Group, which is hereinafter called the “Engineer”), and in the other Contract Documents. Contractor agrees to and shall do everything required by the Contract Documents. The Contract Documents being hereby defined to include the Contract, Bonds, Drawings, Advertisement, Instructions to Bidders, Bid Form, Bid Form Supplemental, Specifications, General Conditions, and any attachments, supplements, and addendums thereto. The Contract Documents are hereby incorporated herein as part of this Contract.

### ARTICLE II - THE TIME

It is agreed that the Contractor shall, upon execution of this Contract, begin work within ten (10) consecutive calendar days from the date of the notice to proceed, and shall prosecute the work in such a manner so as to complete the installation of all proposed improvements and all related or required under the Contract Documents by **December 1, 2024**. It is agreed that if the Contractor shall be unavoidably delayed in beginning or fulfilling this Contract by reason of excessive storms or floods, or by Acts of Providence, or by general strikes, or by court injunction, or by stopping of the work by the Owner because of any emergency or public necessity, or by any preference, priority or allocation order duly issued by the government, or by reason of alterations ordered by the Owner, the Contractor shall have no valid claim for damages on account of any cause or delay; but Contractor shall in such case be entitled to such an extension of the above time limits herein, as the Engineer shall adjudge and agree, in writing, to be just and reasonable; provided, however, that formal claim for such extension shall be made in writing by the Contractor within one (1) week after the date upon which such alleged cause or delay shall have occurred.

### **ARTICLE III – LIQUIDATED DAMAGES**

It is expressly covenanted and agreed that time is and shall be considered of the essence in the Contractor's performance of the work under this Contract. In the event that the Contractor shall fail to perform the entire work agreed to by or at the times referred to in the Contract Documents, or within some other certain date subsequent which may have been advanced under the provisions of Article II, the Contractor shall pay unto the Owner as and for liquidated damages and not as a penalty, the sum of Five Hundred Dollars (**\$500.00**) for each and every calendar day that the Contractor shall be in default. Said sum of five hundred dollars (**\$500.00**) per day, in view of the difficulty of estimating such damages with exactness is hereby expressly fixed and agreed upon as the damages which will be suffered by the Owner for reason of such defaults. It is also understood and agreed that the liquidated damages hereinbefore mentioned are in lieu of the actual damages arising from such breaches of this Contract, which said sums the Owner shall have the right to deduct from any moneys in its hand otherwise due or to become due to the Contractor or to sue for and recover compensation for damages for nonperformance of this Contract at the time stipulated herein and provided.

### **ARTICLE IV - OWNER'S RIGHT TO COMPLETE**

It is agreed that if at any time the Contractor should abandon his work; or if he should be adjudged as bankrupt, or if his performance of this Contract is unnecessarily or unreasonably delayed; or if he should make a general assignment for the benefit of his creditors; or if a receiver should be appointed on account of his insolvency; or if he should persistently or repeatedly fail to supply enough properly skilled workmen or sufficient materials for the work; or if he should habitually fail to make prompt payment to sub-contractors or to pay promptly for materials and labor; or if he should persistently disregard laws or ordinances or the directions of the Engineer; or if he should willfully and repeatedly violate any of the substantial provisions of this Contract, then in such case the Owner, after giving the Contractor and his sureties written notice thereof, may order him to discontinue all work under this Contract, or any part thereof. Thereupon, the Contractor shall at once discontinue such work or such part thereof, and shall cease to have any right to access the property. The Owner shall have the right to finish the work, or part thereof, by contract or otherwise as Owner may elect, and for that purpose to take possession and make use of such materials, tools, building appliances and equipment as may be found upon the property, and to charge the cost and expense of such completion to the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, the amount of such excess shall be paid to the Contractor; and if such expense shall exceed such unpaid balance, the Contractor or his sureties shall pay to the Owner the amount of such excess.

It is expressly stipulated and agreed that from and after the date of the order to discontinue work, and until such work shall have been finally completed by the Owner, neither the Contractor nor any of his agents or employees shall remove, or make any effort directly or indirectly to remove any of the above-mentioned materials, tools, building appliances or equipment from the points at which they were located on the property on the date of said order, except upon the written consent of the Owner to do so.

It is further understood and agreed that the foregoing provisions of these articles are optional at owner's discretion, nonexclusive remedies, and without prejudice to any other right or remedy which the Owner may have under this Contract, at law, or in equity.

**ARTICLE V - ASSIGNMENT OF CONTRACT**

It is agreed that the Contractor shall not assign or transfer this Contract or sublet any part of the work embraced in it, except with written consent of the Owner to do so.

It is further agreed that all parts of the work which may be performed by a subcontractor shall be done in conformity with and be subject to all the provisions of the Contract Documents exactly as if performed by the Contractor and his immediate employees and workmen. No subletting of the work shall in any way diminish or weaken the responsibility of the Contractor for all parts of the work or lessen his obligations and liabilities under this Contract.

It is likewise agreed that the Contractor shall not assign, either legally or equitably, any of the monies payable to him under this Contract, or his claim thereto, except with the written consent of the Owner.

**ARTICLE VI - THE CONTRACT BASE BID**

It is agreed that, in consideration of the faithful and entire performance by the Contractor of his obligations under this Contract, the Owner shall pay to him, at the time and in the manner hereinafter stipulated, the base bid price as given in the bid form for the estimated total of:

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).

On or about the fifteenth (15th) of each month during which satisfactory progress has been made toward the final completion of the work, the Engineer will make an estimate of the amount and value of the work which has been completed under this Contract during that month, or since the date of the last preceding estimate. Such estimate shall not be required to be made by strict measurement or with exactness but may be made either wholly or in part by appraisalment or estimation or by a consideration of accounts for labor and materials, and it shall be sufficient if it is approximate only. Any error or inaccuracy which may occur in any such progress estimate may be allowed for or corrected in any subsequent estimate.

It is agreed that the Contractor shall submit to the Owner a written request for each partial or final estimate of payment. It is further agreed that the Contractor shall submit sworn statements or other satisfactory evidence, as requested by the Owner, that all persons who have supplied labor, materials, or equipment for the work embraced under this Contract as well as persons who have claimed damages arising out of the performance of this Contract have been fully paid for the same.

Payments based on progress estimates will be made within thirty (30) days of receipt by the Township of the progress estimates for work completed during the preceding month or since the date of the last preceding progress payment. Payments will be in accordance with the provisions of Act 524 of the Michigan Public Acts of 1980 and in accordance with the terms of this Contract.

No allowance will be made for materials furnished which are not incorporated in the finished work, unless otherwise stated.

Pursuant to Act No. 524, Michigan Public Acts of 1980, the Owner hereby designates PEA Group as the person representing it to whom written requests for payments are to be submitted. The Contractor hereby designates PEA Group as the person who will submit written requests for payments to the Owner.

It is agreed that in the event a dispute arises over an avoidable or unacceptable delay in the performance of the work as described in Section 4 (3) of Act 524 of the Michigan Public Acts of 1980 (MCLA 125.1564 (3)) the dispute may, at the option of the Owner, be submitted for resolution in accordance with the provisions of Section 4 (2) of said Act. The dispute resolution process herein described shall be used only for the purpose of determining the rights of the parties to retain funds and interest earned on retained funds. Nothing herein shall impair the right of the Owner to bring an action in any court of jurisdiction to determine the rights of the parties.

The progress estimates and payments will include all alterations which may be made under the provisions of Section 45 of the General Conditions on the same basis as other work is included. All such work is regarded herein as essentially a part of the Contract and not merely an addition to it.

No progress estimate made or certified by the Engineer and no partial payment made to the Contractor by the Owner shall be deemed or construed as an acceptance of any part of the work under this Contract or any portion thereof prior to the final completion of the work and payment of the final estimate.

Within thirty (30) days after satisfactory completion of the work covered by this Contract, the Engineer will make a final inspection of the work as a whole and will make up a final estimate of the total amount due the Contractor under the terms of the Contract. Upon the acceptance of the completed work, the Owner will pay to the Contractor the entire amount of such final estimate less the sums previously paid. The Contractor shall file with the Owner the Contractor's Affidavit included in the Contract Documents.

#### **ARTICLE VII - ANTICIPATED CONDITIONS AND WORK BY OTHERS**

The Contractor further acknowledges that he is not entitled to any additional compensation by reason of conditions being different from those anticipated or by reason of his failing to fully acquaint himself with the site, the conditions, and the work now in place or on account of interference by the Owner or by any other contractor's activities which affect the work of this Contract.

#### **ARTICLE VIII - MISCELLANEOUS**

The Contractor acknowledges that he has not received or relied upon any representations or warranties of any nature whatsoever from **Van Buren Township**, its agents or employees, and that this Contract is entered into solely upon the Contractor's own independent business judgment.

#### **ARTICLE IX - BONDS**

The Contractor shall provide liability insurance and bonds in an amount specified by the Owner (Township) pursuant to and in accordance with this Contract, the Contract Documents and MCL 129.201 et seq. The Contractor shall provide satisfactory evidence that the corporate surety and the insurer are licensed and/or approved to conduct business in the state of Michigan. Such evidence shall include a certified copy of the Certificate of Authority issued by the Insurer Licensing Division of the Insurance Bureau.

#### **ARTICLE X - INDEPENDENT CONTRACTOR RELATIONSHIP**

In the performance of this Contract, the relationship of Owner to the Township shall be that of an independent contractor and not that of an employee or agent of the Owner. Contractor is and shall perform under this Contract as an independent contractor, and no liability or responsibility with respect to benefits of any kind, including without limitation, medical benefits, worker's compensation, pension rights, or other rights or liabilities arising out of or related to a contract for hire or employer/employee relationship shall arise or accrue to either party as a result of the performance of this Contract.

Contractor, as an independent contractor, is not authorized to enter into or sign any Contracts on behalf of the Owner or to make any representations to third parties that are binding upon the Owner. Although Contractor may be required under this Contract to advise, make recommendations to and to a limited extent represent the Owner, all plans, studies, applications, submittals, surveys, reports and any other information relating to the work must be submitted to and approved by the Owner or the Owner's authorized official prior to being disseminated to any third party and shall only be so disseminated if such dissemination is approved in advance by the Owner or an authorized official of the Owner.

Contractor represents that it will dedicate sufficient resources and provide all necessary personnel, labor, materials and equipment required to perform the work described in this Contract in accordance with the terms and conditions of this Contract.

#### **ARTICLE XI - LIABILITY AND INSURANCE.**

Contractor agrees to indemnify and hold harmless the Owner, its elected and appointed officials and employees and attorneys, and all Additional Named Insureds from and against any and all claims, demands, suits, losses and settlements, including actual attorney fees incurred and all costs connected therewith, for any damages which may be asserted, claimed or recovered against the Owner and/or any Additional Named Insured by reason of: (i) personal injury, death and/or property damages which arises out of or is in any way connected or associated with the actions or inactions of Contractor in performing or failing to perform the work; (ii) civil damages which arise out of any dispute between Contractor and its subcontractors, affiliates, employees or other private third parties in connection with this Contract; or (iii) civil damages and penalties, including without limitation damages and penalties resulting from claims of discrimination, civil rights violations, statutory violations or constitutional violations, which arise out of any or are in any way connected or associated with the actions or inactions of Contractor. Contractor also agrees to indemnify and hold harmless the Owner, its elected and appointed officials and employees and attorneys, and all Additional Named Insureds from and against any and all claims, demands for payment, suits, losses and settlements, including actual attorney fees incurred and all costs connected therewith, for or relating to any patented or copyrighted material, process, or device that may be used in the course of performing the work or form a part of the work.

Contractor shall provide evidence of adequate insurance coverage in the types and amounts required under the Contract Documents. Such insurance shall be maintained at the specified level of coverage throughout the term of this Contract, including any extension of such term, and will cover all work, acts and omissions by and on behalf of Contractor in connection with this Contract with such coverage being primary and non-contributory. Contractor shall provide evidence of insurance coverage as set forth herein at any time requested by the Owner.

#### **ARTICLE XII - GENERAL PROVISIONS.**

- A. *Entire Contract.* This instrument, together with the Contract Documents, contains the entire Contract between the Owner and Contractor. No verbal Contract, conversation, or representation by or between any officer, agent, or employee of the parties hereto, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- B. *Compliance with Laws.* This Contract and all of Contractor's work and practices shall be subject to all applicable state, federal and local laws, ordinances, rules or regulations, including without limitation, those which apply because the Owner is a public governmental agency or body. Contractor represents that it is in compliance with all such laws and eligible and qualified to enter into this Contract.
- C. *Governing Law.* This Contract shall be governed by the laws of the State of Michigan.

D. Assignment. Contractor shall not assign this Contract or any part thereof without the written consent of the Owner. This Contract shall be binding on the parties, their successors, assigns and legal representatives.

E. Notices. Written notices under this Contract shall be given to the parties at their addresses contained in this Contract by personal or registered mail delivery to the attention of the following persons:

Engineer: Jeffrey Smith, PLA, LEED AP of PEA Group

Owner: **VAN BUREN TOWNSHIP**  
**46425 Tyler Road**  
**Van Buren Twp., MI 48111**

Contractor: \_\_\_\_\_

F. Changes. Any changes in the provisions of this Contract must be in writing and signed by the Owner and Contractor.

G. Waivers. No waiver of any term or condition of this Contract shall be binding and effective unless in writing and signed by all parties, with any such waiver being limited to that circumstance only and not applicable to subsequent actions or events.

H. Jurisdiction and Venue of Contract. This Contract shall be considered for all purposes, including the establishment of jurisdiction and venue in any court action between the parties, as having been entered into and consummated in the Charter Township of Van Buren, Wayne County, Michigan.

If any section, paragraph, sentence, clause or phrase of this Contract or the Contract Documents shall be held invalid, the same shall not affect any other part of this Contract or the Contract Documents.

WITNESSES:

**Van Buren Township**

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

By \_\_\_\_\_  
Kevin McNamara, Its Supervisor

By \_\_\_\_\_  
Leon Wright, Its Clerk

CONTRACTOR: (insert Contractor name below)

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

By \_\_\_\_\_

\_\_\_\_\_, Its \_\_\_\_\_  
(print name) (print title)

## INSTRUCTIONS FOR EXECUTING CONTRACT

If the Contractor be a Corporation, the following certificate should be executed:

I, \_\_\_\_\_, certify that I am the Secretary of the Corporation named as Contractor hereinabove; that \_\_\_\_\_ who signed the foregoing Contract on behalf of the Contractor, was then \_\_\_\_\_ of said Corporation; that said Contract was duly signed for and on behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

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

If the Contract be signed by the Secretary of the corporation, the above certificate should be executed by some other officer of the Corporation, under the Corporate Seal. In lieu of the foregoing certificate, there may be attached to the Contract copies of so much of the records of the Corporation as will show the official character and authority of the officers signing, duly certified by the Secretary or Assistant Secretary under the Corporate Seal to be true copies.

The full name and business address of the Contractor should be inserted and the Contract must be signed by a duly authorized officer of the Corporation. Please have the name and title of the signing party or parties typewritten or printed under all signatures to the Contract.

If the Contractor should be operating as a partnership, each partner should sign the Contract. If the Contract be not signed by each partner, there shall be attached to the Contract a duly authenticated Power of Attorney evidencing the signer's (signers') authority to sign such Contract for and in behalf of the partnership.

If the Contractor is a limited liability company, the Contract must be signed by a duly authorized member of the company and copies of the records of the company shall be attached to the Contract showing, to the satisfaction of the Owner in its discretion, the authority of the member to sign the Contract on behalf of the company and bind the company at the time of signing, and also an affidavit certifying such authority and that the records attached are true copies shall be attached.

If the Contractor be an individual, the trade name (if the Contractor be operating under a trade name) should be indicated in the Contract and the Contract should be signed by such individual. If signed by one other than the Contractor, there should be attached to the Contract a duly authenticated Power of Attorney evidencing the signer's authority to execute such Contract for and in behalf of the Contractor.

END OF SECTION

**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that \_\_\_\_\_, Contractor, as Principal, and \_\_\_\_\_, as Surety, are held and firmly bound unto the VAN BUREN TOWNSHIP, COUNTY OF WAYNE, Owner, in the sum of Dollars (\$ \_\_\_\_\_) to be paid to the Owner for which payment well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATIONS are such that, WHEREAS, the said \_\_\_\_\_ did, on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by articles that date enter into a contract with said Owner for the NOW, THEREFORE, if said Contractor shall save and hold harmless the said Owner from all public liability and damages of every description in connection therewith, shall well and faithfully in all things fulfill the said contract according to all the conditions and stipulations therein contained in all respects, and shall save and hold harmless the said Owner from and against all liens and claims of every description in connection therewith, then this obligation shall be void and of no effect; but otherwise it shall remain in full force and virtue, and in the event that the said Owner shall extend the time for the completion of said work or otherwise modify elements of the contract in accordance with provisions thereof, such extension of time or modification of the contract shall not in any way release the sureties of this bond.

WITNESS our hands and seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

WITNESSES:

	(SEAL)
	(SEAL)
	Principal
	(SEAL)
	(SEAL)

Surety

\_\_\_\_\_

Mailing Address

\_\_\_\_\_

**LABOR, MATERIAL & EQUIPMENT RENTAL BOND**

KNOW ALL MEN BY THESE PRESENTS, That we, \_\_\_\_\_  
of the \_\_\_\_\_ hereinafter called the  
Principal, and \_\_\_\_\_ hereinafter  
called the Surety, are held and firmly bound unto VAN BUREN TOWNSHIP, County of WAYNE,  
State of Michigan, in the sum of  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) to the  
payment whereof, well and truly to be made, we bind ourselves, our heirs, executors,  
administrators, successors, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this \_\_\_ day of \_\_\_\_\_ A.D. 20\_\_.

WHEREAS, the above named Principal has entered into a certain contract with the VAN  
BUREN TOWNSHIP, COUNTY OF WAYNE, hereinafter called the Owner, dated the \_\_\_ day  
of \_\_\_\_\_, A.D. 20\_\_\_\_, (hereinafter called the Contract) for  
which contract and the specifications for said work shall be deemed a part hereof as fully as if set  
out herein, and WHEREAS, this bond is given in compliance with and subject to all the  
provisions and conditions of PA 1963, No. 213 as amended, being CL 1948, Sections 129.201 -  
129.211.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the  
above named Principal, legal representatives, or successors shall pay or cause to be paid to all  
subcontractors, persons, firms and corporations, as the same may become due and payable, all  
indebtedness which may arise from said Principal to a subcontractor or party performing labor or  
furnishing materials or renting equipment, or any subcontractor to any person, firm, or corporation  
on account of any labor performed, materials furnished or equipment rented, in connection with

the contract, construction, and work herein referred to, then this obligation shall be void; otherwise to remain in full force and effect.

This bond is given upon the express condition that any changes, alterations, or modifications that may be hereafter recorded or made in the construction and complete installation of the work herein referred to, or the placing of an inspector or superintendent thereon by the Owner shall not operate to discharge or release the sureties thereon.

IN WITNESS THEREOF, the parties hereto have caused this instrument to be executed by their respective authorized officers this \_\_\_\_ day of \_\_\_\_\_, A.D. 20 \_\_\_\_.

\_\_\_\_\_ (SEAL)

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_ (SEAL)

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
Mailing Address

Signed, sealed, and delivered in the presence of:

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

Bonds correct in form:





## GENERAL CONDITIONS

### 1. DEFINITION OF TERMS

The following definition of terms shall be applied to the Contract Documents:

- |                        |                    |
|------------------------|--------------------|
| A. Owner/Township      | Van Buren Township |
| B. Engineer            | PEA Group          |
| C. Landscape Architect | PEA Group          |

The terms “Contract” and “Agreement” are used interchangeably in the Contract Documents and both such terms mean and refer to “The Contract” signed by Contractor and Owner to which these General Conditions are attached, inclusive of the Contract Documents.

The terms “Owner” and “Township” are used interchangeably in the Contract Documents and both such terms mean and refer to the Van Buren Township.

### 2. CONTRACT DOCUMENTS

The original and three (3) counter prints of the Contract shall be signed by the Owner and the Contractor.

The work under this Contract shall consist of the items listed in the Proposal, including all incidentals necessary to fully complete the project in accordance with the Contract Documents. The Contract Documents shall consist of this complete book of documents as listed in the index and the Contract Drawings titled “**Iron Belle Trail Section J and K**”.

### 3. CONTRACT DRAWINGS AND SPECIFICATIONS

The work to be done is shown on the accompanying set of original drawings and are hereby made a part of this Contract, it being mutually understood and agreed that when taken together, the plans and Contract Documents, including the Specifications and the General Conditions, are complementary, and what is called for by any one shall be binding as if called for by all. The intent of the Contract Documents is to include in the contract price the cost of all labor and materials, water, fuel, tools, plant, equipment, light, transportation, and all other expenses as may be necessary for the proper execution and completion of the work.

These original drawings may be supplemented by other drawings furnished by the Contractor and approved by the Engineer or supplied to the Contractor by the Engineer during the progress of the work as the Engineer may deem to be necessary or expedient. All such supplementary contract drawings or instructions are intended to be consistent with the Contract Documents, true developments thereof and reasonably inferable therefrom.

Therefore, no additional charge will be allowed on a claim that particular supplemental contract drawings or instructions differed from the Contract Documents incurring extra work, unless the Contractor has first brought the matter, in writing, to the Engineer's attention for proper adjustment before starting on the work covered by such and has received from the Engineer an order in writing to so proceed.

These original and supplementary drawings constitute the drawings according to which the work is to be done. The Contractor shall keep at the site of the work an approved or confirmed copy of all drawings and specifications and shall at all times give the Engineer or Owner access thereto.

In case any inconsistency, omission, or conflict shall be discovered in either specifications or drawings, or if in any place the meaning of either or both shall be obscure, or uncertain, or in dispute, the Engineer shall decide as to the true intent of the documents.

#### 4. ENGINEER'S STATUS DURING CONSTRUCTION

Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth herein and shall not be extended without written consent of Owner and Engineer.

The Engineer will coordinate review and approve construction sequencing. Engineer will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defects and deficiencies in the Work.

If Owner and Engineer agree, Engineer will furnish an Inspector to assist Engineer in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Inspector and assistants will be provided as follows:

The Owner may appoint on-the-job inspectors who shall be under the direction of the Engineer. (1) The inspector on the work will inform the Engineer as to the progress of the work, the manner in which it is being done, and the quality of the materials being used. (2) The inspector will call to the attention of the Contractor any failure to follow the plans and specifications that he may observe. (3) The inspector shall have the authority to reject materials that do not conform to plans and specifications. (4) The inspector shall have no authority to direct the Contractor's work or workmen, to supervise the Contractor's operations or to change the contract plans or specifications. (5) In no instance shall any action or omission on the part of the inspector release the Contractor of the responsibility of completing the work in accordance with the plans and specifications.

Engineer will have authority to disapprove or reject Work which Engineer believes to be defective, and will also have authority to require special inspection or testing of the Work.

#### 5. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

Neither Engineer's authority to act under this Article or elsewhere in the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of Engineer to Contractor, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of Engineer as to the Work, it is intended that such requirement, direction, review or judgment of Engineer as to the Work, will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the following:

- A. The Engineer will not be responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and Engineer will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.
- B. The Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

6. CONTRACTOR'S RESPONSIBILITY

The Contractor shall assume full responsibility for the work and take all precautions for preventing injuries to persons and property on or about the work; shall bear all losses resulting to him on account of the amount or character of the work or because the conditions under which the work is done are different, or because the nature of the ground in which the work is done is different from what was estimated or expected, or on account of the weather, floods, elements, or other causes, and he shall assume the defense and save harmless the Owner, PEA Group, and its individual officers and agents, and all additional named assured, from all claims relating to labor provided and materials furnished for the work; to inventions, patents, and patent rights used in doing the work; to injuries to any persons or property received or sustained by or from the Contractor, his agents or employees in doing the work or arising out of the work performed or to be performed; and to any act, or neglect of the Contractor, his agents or employees.

The mention of any specific duty or liability of the Contractor - in this or in any part of the Contract Documents shall not be construed as a limitation or restriction upon any general liability or duty imposed on the Contractor by the Contract Documents.

7. PERMITS AND REGULATIONS

The Contractor shall secure, at no cost to the Owner, all permits and licenses necessary for the prosecution of the work. The Contractor shall keep himself fully informed of all laws, ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.

He shall at all times observe and comply with, and shall cause all his agents and employees to observe and comply with all existing laws, ordinances, regulations, orders and decrees. Provided, that if the drawings and specifications are at variance therewith, the Contractor shall promptly notify the Engineer in writing and any necessary changes shall be adjusted as provided in the Contract Documents.

The Contractor shall assume the responsibility of performing his work in compliance with all provisions of the permits and/or applications and conditions.

8. SUBCONTRACTS

The Contractor shall not sublet, assign, or transfer this Contract or any portion thereof or any payments due him thereunder, without the written consent of the Owner.

Assignment or subletting any portion of this Contract shall not operate to release the Contractor or his bondsmen hereunder from any of the Contract obligations.

Any subcontractor performing work under this contract may be requested by the Owner to submit a resume and references as proof of their qualifications and demonstrating their ability to satisfy the requirements as set forth in these Contract Documents. The Owner may also require the submission of any additional information necessary to satisfy the Owner that the subcontractor is adequately prepared to fulfill the subcontract in accordance with these Contract Documents.

The Contractor shall, as soon as practicable after the signing of the Contract, notify the Engineer and Owner in writing of the names of subcontractors proposed for the work and shall not employ any that the Engineer or Owner may object to as incompetent or unfit.

If the Contractor shall cause any part of the work under this Contract to be performed by a subcontractor, the provisions of this Contract shall apply to such subcontractor and his officers and employees in all respects as if he and they were employees of the Contractor, and the Contractor shall not be in any manner thereby relieved from his obligation and liabilities; and the work and materials furnished by the subcontractor shall be subject to the same provisions as if furnished by the Contractor.

9. INFORMATION BY THE CONTRACTOR

The Contractor shall submit to the Engineer full information as to the materials, equipment, and arrangements which the Contractor proposes to furnish. This information shall be complete to the extent that the Engineer may intelligently judge if the proposed materials, equipment, and arrangements will meet the Contract requirements.

Prior to the approval of materials, equipment, and arrangements by the Engineer based on the information submitted by the Contractor, any work done by the Contractor shall be at his own risk.

The approval of information covering materials, equipment, and arrangements by the Engineer shall in no way release the Contractor from his responsibility for the proper design, installation, and performance of any material, equipment, or arrangement, or from his liability to replace same should it prove defective.

10. GENERAL REQUIREMENTS FOR MATERIALS AND WORKMANSHIP

In the specifications where a particular material or piece of equipment is specified by reference to some particular make or type, or equal, it is not the intent to limit competition but to set up by such reference a standard of quality most easily understood and defined. If materials or equipment of other make or type than that specified by name are offered by the Contractor they will be given full consideration by the Engineer and the Engineer's decision will be final as to whether the materials or equipment offered are equal to those specified.

Unless otherwise stipulated in the specifications, all equipment, materials, and articles incorporated in the work covered by this contract are to be new and of the best grade of their respective kinds for the purpose. The Contractor shall, if required, furnish such evidence as to kinds and quality of materials as the Engineer may require.

The Contractor shall furnish suitable tools and building appliances and employ competent labor to perform the work to be done, and any labor or tools or appliances that shall not in the judgment of the Engineer, be suitable or competent to produce this result may be ordered from the work by him, and such labor or tools or appliances shall be substituted therefor by the Contractor as will meet with the approval of the Engineer.

If not otherwise provided, material or work called for in this Contract shall be furnished and performed in accordance with well-known established practice and standards recognized by architects, engineers and the trade.

If any type of machinery, equipment, or tools are specifically needed to prosecute the work in an orderly, workmanlike manner, the Engineer may so direct the Contractor to procure same, before work is continued.

The Owner reserves the right to reject any material at the job site even though having been previously tested. All materials rejected by the Owner or his representative shall be removed from the site of work immediately.

The Contractor shall obtain, from his supplier, certificate of compliance to manufacturing and specifications for which the materials are to be used or incorporated in the project.

11. TESTING AND SAMPLES

Where called for in the specifications, samples of materials in the quantity named shall be submitted to the Engineer for approval. Where tests are required, they shall be made at the expense of the Contractor, except as otherwise called for in the specifications. For materials covered by ASTM or Federal Specifications, unless otherwise stipulated, the required tests are to be made by the manufacturer and his certificate therefor submitted to the Engineer.

12. LINES AND GRADES

Principal reference lines or points and bench marks shall be given by the Engineer at such time as he may deem necessary; or if the Contractor shall be in need of such reference lines or bench marks, he shall notify the Engineer twenty-four (24) hours in advance.

The contractor will employ a surveyor to set suitable stakes and marks showing the locations and elevations of the various parts of the work and will furnish the Contractor with "cut sheets" referred to the reference points. No work shall be undertaken until such stakes and marks shall have been set a surveyor. The Contractor shall take due and proper precautions for the preservation of these stakes and marks, and shall see to it that the work at all times proceeds in accordance therewith and shall provide all labor and material to set required batter boards or laser and locate the work accurately with reference to the above points.

Good judgment will be exercised in placing construction stakes in positions most useful and at positions requested by the Contractor. However, an excessive amount of re-staking shall be at the expense of the Contractor and no work shall proceed without re-establishment of reference stakes and "cut sheets" in those areas wherein re-staking is necessary.

13. PROTECTION OF WORK AND PROPERTY

The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect all public property and private property, within and/or abutting the work area, from injury or loss arising in connection with this Contract.

He shall, without delay, make good any such damage, injury or loss, and shall defend and save the Owner, and PEA Group, and all additional named assured, harmless from all such damages or injuries occurring because of his work.

He shall furnish and maintain all passageways, barricades, guard fences, lights, and danger signals, provide watchmen and other facilities for protection required by public authority or by local conditions or as directed by the Engineer, all at no additional cost to the Owner. In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the owner, shall take such action as may be necessary to prevent such threatened damage, injury or loss.

The Contractor shall assume full responsibility of loss or damage to the work during the entire construction period resulting from caving earth and from storms, floods, frosts, and other adverse weather conditions, and from all other causes whatsoever not directly due to the acts or neglect of the Owner, including fire, vandalism and malicious mischief, and shall turn the finished work over to the Owner in good condition and repair, at the time of the final pay estimate. For the purpose of this section the decision of the Engineer, with respect to existing conditions and for the need for corrective action by the Contractor, shall be final.

14. RESPONSIBILITY FOR ADJOINING STRUCTURES AND TREES

The Contractor shall assume full responsibilities for the protection of all pavements, curbs, bridges, railroads, poles, and any other surface structures and all water mains, sewers, telephone, gas mains, and other underground services and structures along and near the work which may be affected by his operations, and shall indemnify, defend and save harmless the Owner, and PEA Group, against all damages or alleged damages to any such structure arising out of his work. The Contractor shall bear the cost of repair or replacement of any such structure damaged as a result of his operations.

No trees or shrubbery of any kind shall be removed or destroyed by the Contractor without the written permission of the Owner, and the Contractor will be held fully responsible for any damages caused by his work to adjoining trees and shrubs. Ample precautions shall be taken by the Contractor to protect such trees and shrubs as are to remain in place by surrounding them with fences or other protection before construction work begins. Shrubby that has to be removed shall be preserved and replaced in a manner acceptable to the Owner.

15. MAINTENANCE OF SERVICE

Drainage through existing sewers and drains shall be maintained at all times during construction and all nearby gutters shall be kept open for drainage.

Where existing sewers are encountered in the line of the work which interfere with the construction, the flow in the sewers, including both dry weather flow and storm flow, shall be maintained by constructing a satisfactory flume or any other means approved by the Engineer.

All detours shown on the Drawings or required because of the Contractor's operation shall be built and maintained at the Contractor's expense.

Safety precautions shall be followed at all street openings; substantial barricades shall be erected as deemed necessary to prevent accidents to vehicular or pedestrian traffic and red flags by day and red lights by night shall be diligently posted by the Contractor at all points of possible danger. In case detours or other traffic instructions are necessary, suitable warning or direction signs shall be erected and maintained by the Contractor. In all cases the detour roadways shall be maintained so as to keep free from undue dust conditions and reasonably graded.

During the progress of the work, the Contractor shall accommodate both vehicular and foot traffic and shall provide free access to fire hydrants, water and gas valves. Except as otherwise specified herein or as noted on the drawings, street intersections may be blocked but one-half at a time, and the Contractor shall lay and maintain temporary driveways, bridges and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.

In the event of the Contractor's failure to comply with these provisions, the Owner may with or without notice, cause the same to be done, and will deduct the cost of such work from any money due or to become due the Contractor under this Contract, but the performance of such work by the Owner, or at his insistence, shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

16. STORAGE OF MATERIALS

Materials and equipment distributed, stored, and placed upon or near the site of the work shall at all times be so disposed as not to interfere with work being prosecuted by other contractors in the employ of the Owner, or with street drainage, or with fire hydrants or with access thereto, and not to unreasonably inconvenience the public from access to or use of their property. When construction staging areas are provided per easement, the Contractor shall place and store all materials for the work within the limits of the construction staging area. The Contractor shall access the construction staging area as designated on the construction and easement documents.

17. RELATION TO OTHER CONTRACTORS

The Contractor shall so conduct his operations as not to interfere with or injure the work of other contractors or workmen employed on adjoining or related work and he shall promptly make good any injury or damage which may be done to such work by him or his employees or agent. Should a contract for adjoining work be awarded to another contractor, and should the work of one of these contracts interfere with that of the other, the Owner shall decide which contractor shall cease work for the time being and which shall continue or whether the work in both contracts shall continue at the same time and in what manner.

18. CONTRACTOR'S SUPERVISION AND ORGANIZATION

The work under this Contract shall be under the direct charge and direction of the Contractor. The Contractor shall give effective superintendence to the work, using his best skill and attention. The Contractor shall at all times keep on the site of the work, during its progress, a competent superintendent and any and all necessary foremen and assistants. The superintendent shall represent and have full authority to act for the Contractor in the latter's absence, and all directions given to him shall be as binding as if given to the Contractor. On written request in each case, all such directions will be confirmed in writing to the Contractor.

The Contractor shall employ only competent, effective workmen and shall not use on the work any unfit person or one not skilled in the work assigned to him, and he shall at all times enforce strict discipline and good order among his employees. Whenever the Engineer shall notify the Contractor, in writing, that any man on the work is, in the opinion of the Engineer, careless, incompetent, disorderly, or otherwise unsatisfactory, such man shall be discharged from work and shall not again be employed on it except with the written consent of the Engineer.

The Contractor shall establish and maintain an office on the site of the work, or at some convenient point adjacent thereto, during the continuance of this contract and shall have at all times during working hours, a representative authorized to act on behalf of the Contractor. Any communication given to and received by said representative shall be deemed to have been given to and received by the Contractor. Copies of the drawings and specifications shall at all times be kept on file by the Contractor at readily accessible points near the work.

19. FACILITIES FOR INSPECTION

The Owner, the Engineer, and their employees shall at all times have the right to enter upon the premises upon which work is being done, or upon which material is stored for the work under this Contract, and to inspect the work and materials, and to ascertain whether or not the construction is carried out in accordance with this Contract, and the Contractor shall furnish all reasonable facilities, and give ample time for such inspection. All materials shall be subject to mill and shop inspection, as provided in the specifications.

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

If the Contractor does not remove such rejected work and materials promptly, after written notice, the Owner may remove them and store the material at the expense of the Contractor.

The Engineer has the right to have removed by the Contractor such portion of the work as he may deem necessary for the discovery of improper work or material, and the Contractor must restore such work at his own expense if improperly done and at the expense of the party of the first part if found to be in proper condition. Any work which during its progress and before its final acceptance may become damaged from any cause, shall be removed and replaced by good, satisfactory work at the Contractor's expense.

20. SHOP DRAWINGS

Where called for in the specifications, the Contractor shall submit to the Engineer for approval in not less than five (5) copies, details, specifications, cuts and drawings of such equipment and structural work as may be required. The Contractor shall make any changes or alterations required by the Engineer and re-submit same without delay. The approval of the Engineer shall not relieve the Contractor of responsibility for errors in the drawings, as the Engineer's checking is intended to cover compliance with the drawings, and specifications and not to enter into every detail of the shop work. No work shall be undertaken until the Engineer has approved the shop drawings.

21. ERRORS, CORRECTIONS AND CHANGES IN DRAWINGS AND SPECIFICATIONS

The Contractor shall examine and check all drawings and specifications furnished by the Owner for dimensions, quantities, types of materials, and coordination with other parts of the work on this or related contracts. No structure, sewer pipe, water main or fixtures thereto shall be placed or constructed under conditions which may be expected to result in defective work. If the soil is not sufficiently stable to properly support structure, or if the Contractor wishes to question the materials prescribed, the Contractor shall stop work and immediately notify the Owner and Engineer. The Engineer shall review these conditions, and if he may deem it necessary, he shall make changes in design or accept suggested contractor changes in construction procedure before work is to continue. The Contractor shall not be allowed to take advantage of any such error, omission or discrepancy, as full instructions will be furnished by the Engineer, and the Contractor shall carry out such instructions as if originally specified. In no case shall the Contractor proceed with the work in uncertainty, and any work done by the Contractor after the discovery of any error, omission or discrepancy, until authorized, will be at the Contractor's risk and responsibility. The work is to be made complete and to the satisfaction of the Owner and Engineer, notwithstanding any minor omissions in the specifications or plans.

22. CHANGES IN THE WORK

The Owner shall have the right to require, by written order, changes in, additions to, or deductions from the work required by the contract Documents; provided that if changes, additions or deductions are made, the general character of the work as a whole is not changed thereby. Adjustments in the Contract price, if any, because of any change, addition, or deduction in the work shall be determined as hereinafter provided, and any claim for extension of time for completion shall be adjusted at the time of ordering the change, addition, or deduction. No claim for change, addition, or deduction, or adjustment of price, or extension of time for completion thereof, shall be made or allowed unless done in pursuance of written order from the Owner specifically authorized such change, addition, or deduction. Drawings without a written order shall not be considered such authority. Written notice of such claims shall be made to the Engineer before the commencement of the work. Where the written order diminishes the quantity of work to be done, this shall not constitute a basis for a claim for damages or anticipated profits on the work that may be dispensed with.

Under circumstances which, in the judgment of the Engineer, so necessitate, the Engineer shall have authority to require, by written order, changes in, additions to, or deductions from the work. Such written order by the Engineer shall be subject to later confirmation by the Owner when the extent and costs have been established.

It is understood and agreed that in case any change in, addition to, or deduction from the work is required, said change shall in no way invalidate the Contract and shall not affect or discharge the bonds furnished by the Contractor.

The Contractor, without extra charge, shall make such slight alternations as may be necessary to make adjustable parts fit to fixed parts, leaving all complete and in proper shape when done.

23. BASIS FOR DETERMINING COST OF CHANGES IN THE WORK

Adjustments, if any, in the Contract price by reason of change in the work shall be limited to the amount specified in the written order authorizing the change in the work. Adjustments shall be determined by one or more of the following methods, the Owner reserving the right to select the method or methods at the time the written order is issued:

- A. An acceptable lump sum proposal: To facilitate checking and acceptance, the proposal shall be itemized with quantities and prices given for the various items. In determining the acceptability of such proposals, the Owner will use as a general guideline the various items contained in paragraph 23 (c) below.
- B. Unit price: The unit prices may be the "Unit Price" set in the Agreement, or fixed by subsequent agreement between the Owner and the Contractor.
- C. On a cost-plus-limited-basis, not to exceed a specified maximum limit of cost: "COST" as herein used shall be the actual and necessary cost incurred by the Contractor by reasons of the change in the work for:
  - 1) labor
  - 2) materials
  - 3) equipment rental
  - 4) insurance premiums
    - a) Labor costs shall be the amount shown on the Contractor's payroll taxes added when such taxes can be shown to have been incurred. In no case shall the rates charged for labor exceed the rates paid by the Contractor for the same class of labor employed by him to perform work under the regular items of the Contract.
    - b) Materials costs shall be the net price paid for material delivered to the site of the work. If any material previously required is omitted by the written order of the Owner after it has been delivered to or partially worked on by the Contractor and consequently will remain its full value for other uses, the Contractor shall be allowed the actual cost of the omitted material less a fair market value of the material as determined by the Owner.
    - c) Equipment rental shall be the actual additional costs incurred for necessary equipment. Costs shall not be allowed in excess of usual rentals charged in the area for similar equipment of like size and condition; including the costs of necessary supplies and repairs for operating the equipment. No costs, however, shall be allowed for the use of equipment on the site in connection with other work unless its use incurs actual and additional cost to the Contractor. If equipment not on the site is required for the change in the work only, the cost of transporting such equipment to and from the site shall be allowed.

- d) Insurance premiums shall be limited to those based on labor payroll and to the types of insurance required by the Contract. The amount allowed shall be limited to the net costs incurred as determined from the labor payroll covering the work. The Contractor shall, upon request of the Owner, submit verification of the applicable insurance rates and premium computations.

"PLUS" as herein used is defined as a percentage to be added to the items of "Cost" to cover superintendence, use of ordinary tools, bonds, overhead expense and profit. The percentage shall not exceed 10 percent on work done entirely by the Contractor and shall not exceed an aggregate total of 15 percent on work done by a subcontractor.

"SPECIFIED MAXIMUM LIMIT OF COST" is the amount stated in the written order of the Owner authorizing the change in the work. The amount to be allowed the Contractor shall be the "cost," "plus" the percentage or the specified maximum, whichever is the lesser amount.

The Contractor shall keep complete, accurate, daily record of the net actual cost of changes in the work and shall present such information in such form and at such times as the Owner may direct.

24. PATENTS

The Contractor shall pay all royalties and license fees and shall hold and save the Owner, PEA Group, and his agents harmless from all liability of any nature or kind, including cost and expenses, for, or account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents. In this respect the Contractor shall defend all suits or claims for infringement of any patent or license right.

In the event that any claim, suit, or action at law or in equity of any kind, whatsoever is brought against the Owner, involving any such patents or license rights, then the Owner shall have the right to, and may, retain from any money due or to become due to the Contractor, such sufficient sum as is considered necessary to protect said Owner against loss, and such sum may be retained by the Owner until such claim or suit shall have been settled and satisfactory evidence to that effect shall have been furnished the Owner.

25. "OR EQUAL CLAUSE"

Whenever in any of the Contractor Documents an article, material or equipment is defined by describing a proprietary product, or by using the name of a manufacturer or vender, the term "or equivalent" if not inserted, shall be implied. The specific article, material or equipment mentioned shall be understood as indicating the type, function, minimum standard or design, effectiveness, and quality desired and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design and effectiveness. The Contractor shall comply with the requirements of the Contract Documents relative to an Owner's approval of materials and equipment before they are incorporated in the work.

26. CLEANING UP

The Contractor shall, as directed by the Engineer, remove at his own expense from the Owner's property and from all public and private property all temporary structures, rubbish and waste materials resulting from his operations. Unless otherwise stated on the plans or in supplemental specifications, the Contractor shall restore the job site to substantially the same condition as existed prior to the beginning of work.

27. USE OF COMPLETED PORTIONS OF THE WORK

The Owner may, at any time during progress of the work, after written notice to the Contractor, take over and place in service any completed portions of the work which are ready for service, although the entire work of the Contract is not fully completed, and notwithstanding the time for completion of the entire work or such portions may not have expired. In such event, the Contractor will be relieved of maintenance of said portion, except as covered by his guarantee of same. The use of any portion of the work by the Owner under the provisions of this section, shall not constitute final acceptance of the work and shall not be construed to be a final pay estimate for such work.

The date of final pay estimate shall be the date of final pay estimate for the entire project covered under this Contract.

28. PAYMENTS WITHHELD

The Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate for progress payment to such extent as may be necessary to protect the Owner from loss on account of:

- A. Defective work not remedied;
- B. Claims filed or reasonable evidence indicating probable filing of claims;
- C. Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- D. A reasonable doubt that the Contract cannot be completed for the balance then unpaid;
- E. Damage to another contractor.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

29. CONTRACTOR'S RIGHT TO STOP WORK

If the work should be stopped under an order of any court, or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the Owner should fail to pay to the Contractor within sixty (60) days of its maturity and presentation any sum certified by the Engineer, provided no appeal is taken, the Contractor may, upon fourteen (14) days' written notice to the Owner and the Engineer, stop work or terminate this Contract, and shall receive from the Owner payment in full for all work executed, as determined from the prices contained in the approved detailed estimate as computed by the Engineer, but no claim for extra compensation or damages shall be made or allowed because of such termination of the Contract.

30. FAIR EMPLOYMENT PRACTICES ACT

“The contractor and any subcontractors shall not 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 race, color, religion, national origin, age, sex, height, weight, marital status or a disability that is unrelated to the individual’s ability to perform the duties of a particular job or position.” Breach of these covenants may be regarded as a material breach of this Contract.

31. AUTHORITY

No agent of the Owner shall have power to revoke, alter, enlarge, or relax the stipulations or requirements of these specifications, except insofar as such authority may be specifically conferred by the specifications themselves, without the formal authorization to do so, conferred by the Contract or which the specifications are a part, or by ordinance, resolution, or other usual official action by the Owner.

32. STARTING WORK

Material shall be ordered and work shall begin on the ground within ten (10) days after the notice to proceed has been given, unless otherwise stated.

33. SANITARY REGULATIONS

Necessary sanitary conveniences for the use of laborers on the work, properly secluded from public observation, shall be constructed, and maintained in sanitary condition by the Contractor, and their use shall be strictly enforced.

34. SUNDAY, HOLIDAY AND NIGHT WORK

The Contractor is required to prosecute work done under this Contract during the hours of daylight, and no work will be permitted at night or on Sundays or Holidays, except to save property or life or as specifically authorized or directed by the Engineer.

35. PROGRESS OF WORK

The work shall be prosecuted regularly and uninterruptedly, unless the Engineer shall otherwise specifically direct, with such force and at such points as to insure its full completion within the time herein stated.

If, in the opinion of the Engineer, it is necessary or advisable that certain portions of the work be done immediately, the Contractor, upon written order, shall proceed with such work without delay. Should he fail to so proceed, the Engineer may do or cause to be done, such work, and the cost of the same will be deducted from any money due or to become due the Contractor under this Contract.

36. TIME OF COMPLETION

The time allowed for completion of the work contemplated in this Contract shall be as stated in the Agreement or specifications.

37. DELAYS AND EXTENSION OF TIME

Should the Contractor be unavoidably delayed in the commencement, prosecution or completion of the work under this Contract by:

- A. Any act or omission of the Owner, or his agents;
- B. Injunctions, or acts of omissions of public authorities in consequence of acts of omissions of the Owner, or his agent;
- C. Reason of any cause or circumstances, weather conditions being specifically excepted, which the Owner shall decide is absolutely and clearly beyond the control of the Contract and not covered or contemplated by the Contract Documents; then the time for completion of said work shall be extended by the Owner, in writing, for a period equivalent to the time lost by reason of any of the aforesaid causes mentioned above. No such extensions shall be made unless the Contractor shall have presented to the Owner a written notice of the claim therefor within 48 hours of the occurrence of such delay; or in case of extra work or modification of the plans and specifications, unless he extension of time has been mutually agreed to by the Contractor and the Owner at the time the extra work or modification is ordered. It shall be the sole responsibility of the Contractor to present such pertinent facts and data as will satisfy the Owner that the delays as claimed are unavoidable and substantial, and could not be reasonable anticipated or adequately guarded against.

If, in the opinion of the Owner, it becomes necessary for maintaining the progress required to complete the Contract within the specified time or to the time extended, to work after regular hours, on Sundays or Holidays, the Contractor must immediately do so upon request without additional cost to Owner.

Permitting the Contractor to continue and finish the work, or any part of it, after the time fixed for its completion, or after the date in which the time for completion may have been extended shall in no way operate as a waiver on the part of the Owner of any of its rights under this Contract.

All days in which work is suspended by order of the Engineer, or in accordance with these specifications, shall automatically extend the time for completion an equal number of days.

38. LIQUIDATED DAMAGES

In the event of delay in the completion of the entire work required hereunder beyond the period here prescribed or beyond the period to which such time may be extended by authority of the Owner for good cause shown, the Owner shall be paid damages for such delay. In as much as the amount of such damage will be extremely difficult to ascertain, the Contractor agrees to compensate the Owner in the sum of \$500.00 for each and every calendar day that the time consumed in said performance and completion exceeds the time herein allowed for that purpose, which said sum is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that the Owner will suffer by reason of said delay and default and not as penalty; and the Owner shall have the right to deduct and retain the amount of such liquidated damages from any moneys due or which may become due under this Contract.

It is further agreed that permitting the Contractor to complete the work after the time fixed for its completion shall in no way operate as a waiver on the part of the Owner of any of his rights under this Contract.

39. TIME IS ESSENCE OF CONTRACT

It is distinctly understood and agreed to by the parties hereto that the time specified for the completion of the work is the essence of this Contract, and the Contractor shall not be entitled to claim performance of this agreement unless the work is satisfactorily completed in every respect, within the time herein specified.

40. ESTIMATED QUANTITIES

The quantities of the various classes of work to be done and materials to be furnished under this Contract, which have been estimated as stated elsewhere herein, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for the work under this Contract; and neither the Owner nor his agents is to be held responsible should any of the said estimated quantities be found incorrect during the construction of the work; and the Contractor shall make no claim for anticipated profit, nor for loss of profit, because of a difference between the quantities of the various classes of work actually done or materials actually delivered and the estimated quantities as herein stated.

41. FORFEITURE OF CONTRACT

If the work to be done under the Contract shall be abandoned by the Contractor, or if at any time in the judgment of the Owner, the Contractor shall fail to prosecute the work at a reasonable rate of progress, or to comply with all or any part of the terms and requirements herein set forth, then the Owner shall have the right to take possession of the work, including Contractor's plant, supplies, and materials, at any time after having notified the Contractor in writing to discontinue the work under this Contract for said cause or causes, and such action shall not affect the right of the Owner to recover damages resulting from such failure. Upon receiving such notice, the Contractor shall and will, upon demand, immediately give the Owner safe and peaceable possession of the work, including the plant, and shall then cease to have control over any portion thereof or the men employed thereon.

The Owner may then proceed to complete the work herein specified by Contract or otherwise; and the entire cost of same shall be charged to the Contractor and deducted from any sum or sums due or to become due under the Contract; the excess cost, if any, to be paid by the Contractor or his sureties, to said Owner.

42. NO WAIVER OF CONTRACT

Neither the acceptance of the whole or any part of the work by the Owner or his Engineer, or any of its agents, nor any order, measurements, or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for the whole or any part of the work by the Owner, nor any extension of time, nor any possession taken by the Owner or its agents, shall operate as a waiver for any portion of the Contract or any power therein reserved to the Owner, or any right to damages therein provided; nor shall any waiver of any breach of the Contract be held to be a waiver of any other or subsequent breach.

43. PAYMENT NOT TO BE STOPPED

The Owner shall not, nor shall any office thereof, be precluded or stopped by any return or certificate made or given by the Engineer or other office, agent or appointee, under the provisions of this agreement, at any time (either before or after the final completion and acceptance of the work and payment made therefor pursuant to any such return or certificates showing the true and correct amount of money due therefore notwithstanding any such return or certificate, or any payment made in accordance therewith) from demanding and receiving from the Contractor or his sureties, separately or collectively, such sums as may have been improperly paid said Contractor by reason of any return or certificate which has been untruly or incorrectly compiled.

44. GUARANTEE

The Contractor shall guarantee to the Owner for a period of two (2) years from the date of final payment to keep in good order and repair any defect in all the work done under this Contract, either by the Contractor or his subcontractors, or the material suppliers, that may develop during said period due to improper materials, defective equipment, workmanship, or arrangements, and any other work affected in making good such imperfections shall also be made good, all without expense to the Owner, and the Contractor shall execute, in favor of the Owner, a Maintenance and Guarantee Bond, which is a part of these Contract Documents.

45. ESTIMATES AND PAYMENTS

The Owner shall pay and the Contractor receive the prices bid in the proposal, or agreed upon, less any deduction for any uncompleted portion, based upon measurements made by the Engineer or as otherwise herein stipulated, and such measurements shall be final and conclusive.

As an aid to the Owner in preparing estimates for progress payments, the Contractor may be required to submit to the Owner for approval, a breakdown of some or all Contract unit prices into their essential component parts. The sum of the component parts shall not exceed the total Contract price per unit and the breakdown shall not overrule the Contract price per unit.

The Contractor shall submit to the Owner a written request for each payment and a Contractor's Declaration declaring that he has not performed any work, furnished any material, sustained any loss, damage or delay, for any reasons, including soil conditions encountered or created, or otherwise done anything for which he will ask, demand, sue for, or claim compensation from the Owner other than as indicated on the Contractor's Declaration.

When requested by the Owner, the Contractor shall submit receipts or other vouchers showing his payments for materials and labor, including payments to subcontractors.

Payments based on progress estimates will be made within thirty (30) days of receipt by the Township of the progress estimates for work completed during the preceding month or since the date of the last preceding progress payment. Payments will be in accordance with the provisions of Act 524 of the Michigan Public Acts of 1980 and in accordance with the terms of this Contract. No allowance will be made for materials furnished which are not incorporated in the finish work, unless otherwise stated.

Pursuant to Act 524, Michigan Public Acts of 1980, the Owner shall designate a person representing it to whom written requests for payments shall be submitted. The Contractor shall designate a person who shall submit written requests for payment to the Owner.

In the event a dispute arises over an avoidable or unacceptable delay in the performance of the work as described in Section 4 (3) of Act 524 of Michigan Public Acts of 1980 (MCLA 125.1564 (3) the dispute may, at the option of the Owner, be submitted for resolution in accordance with the provisions of Section 4 of Act 524 of Michigan Public Acts of 1980 to an agent designated pursuant to Section 4 (2) of the Act. The dispute resolution process described above shall be used only for the purpose of determining the rights of the parties to retained funds and interest earned on retained funds. Nothing herein shall impair the right of the Owner to bring an action in any court of jurisdiction to determine the rights of the parties.

The Owner may withhold payment of any estimates or portion of estimate until the Contractor shall have furnished satisfactory evidence that he has paid all claims of every nature.

No payment shall be considered as acceptance of the work or any portion thereof prior to the final completion of the work and payment of the final estimate.

Within thirty (30) days after the completion of the work under this Contract to the satisfaction of the Owner and the Engineer, in accordance with all and singular terms and stipulations herein contained, the Owner shall make final payment, from a final estimate made by the Engineer. Before final payment is made, the Contractor shall, as directed by the Owner, make Contractors Affidavit that he has paid or satisfactorily secured all claims of every nature; and shall furnish releases from the surety or sureties and permit agencies, as applicable, approving payment of final estimate by the Owner.

The acceptance by the Contractor of the final payment aforesaid shall operate as, and shall be, a release to the Owner and his Agents, from all claim and liability to the Contractor for anything done or furnished for, relating to the work, or for any act or neglect of the Owner or of any person relating to or affecting the work.

46. WAIVERS OF LIENS

Before receiving final payment, the Contractor shall furnish the Engineer with two (2) copies of waivers of lien from all supplies of labor and material for the project.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete release of any or all claims or liens arising out of this Contract, or receipts in full in lien thereof, and in either case, an affidavit that so far as he has knowledge or information, the releases and/or receipts include all the labor and material for which a claim or lien could be filed.

However, if any person, firm, or corporation which has filed a claim or lien refuses to furnish a release or a receipt in full therefor, any payment which would otherwise become due will be made, provided, the Surety on the Contractor's Labor and Material Bond consents in writing to such payment to the Owner and further furnishes the Owner an affidavit that said Surety will indemnify the Owner against such claim or lien. If any claim or lien remains unsatisfied the Owner reserves the right to use monies earned by the Contractor to discharge said claim or lien including all associated costs.

47. INSURANCE

The Contractor, and any and all of their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to Van Buren Township. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIRs are the responsibility of the Contractor.

The Contractor shall procure and maintain the following insurance coverage:

- A. Workers' Compensation Insurance, including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan. Minimum coverages shall include;
  - 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 on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence and aggregate. Coverage shall include, but not limited to, the following: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent; (E) Explosion, Collapse, and Underground, if applicable.
  
- C. Automobile Liability, including Michigan No-Fault Coverages, with limits of liability not less than \$1,000,000 per occurrence combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.
  
- D. Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$3,000,000.
  
- E. Additional Insured: Policy(ies) and coverages as described above, excluding Workers' Compensation Insurance, shall include an endorsement stating the following shall be *Additional Insureds*: Van Buren Township, all elected and appointed officials, all employees and volunteers, agents, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming Van Buren Township as additional insureds, coverage afforded is considered to be primary and any other insurance the township may have in effect shall be considered secondary and/or excess.
  
- F. Owners' and Contractors' Protective Liability: A separate Owners' and Contractors' Protective Liability Policy with limits of liability not less than \$1,000,000 per occurrence and aggregate. Van Buren Township shall be "Named Insured" on said coverage.

- G. Cancellation Notice: Policy(ies), as described above, shall be endorsed to state the following: It is understood and agreed Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: Van Buren Township, Jennifer Wright, 46425 Tyler Road, Van Buren Township, MI 48111.
- H. Proof of Insurance Coverage: The Contractor shall provide Van Buren Township at the time the contracts are returned for execution a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, a copy of the policy sections, where coverage is provided for additional insured and cancellation notice, may be acceptable. Copies of all policies mentioned above shall be furnished, if so requested.

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates, endorsements, and/or policies to Van Buren Township at least ten (10) days prior to the expiration date.

END OF SECTION

**CONTRACTOR'S DECLARATION**

I hereby declare that I have not, during the period \_\_\_\_\_ to \_\_\_\_\_, A.D., 20\_\_ performed any work, furnished any material, sustained any loss, damage or delay for any reason, including soil conditions encountered or created, or otherwise done anything for which I shall ask, demand, sue for, or claim compensation from \_\_\_\_\_ the Owner, or his agents, in addition to the regular items set forth in the contract numbered \_\_\_\_\_ and dated \_\_\_\_\_, A.D., 20\_\_, for

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executed between myself and the Owner, and in the Change Orders for work issued by the Owner in writing as provided thereunder, except as I hereby claim for additional compensation and/or extension of time, as set forth on the itemized statement attached hereto.

Date: \_\_\_\_\_

\_\_\_\_\_  
(Contractor)

By \_\_\_\_\_

\_\_\_\_\_  
Title



## **SPECIAL PROVISIONS**

**Note:** The following articles form an integral part of these bidding/contract documents. The Bidder/Contractor shall be responsible for inclusion of all detailed information described herein when deriving unit prices/contract price.

Conflicts arising between these Special Provisions and the remainder of the bid/contract package (plans and bid/contract book) shall defer to the Special Provisions.

1. It shall be the Contractor's responsibility to secure all permits and pay all permit fees associated with the permits. All permits must be obtained by the Contractor prior to commencing any construction work.
2. Plans showing approximate locations of existing utilities are provided for reference purposes only. Contractor will still be required to contact Miss Dig for field location of private utility lines prior to commencing construction work.
3. The Bidder/Contractor shall be responsible for all traffic control as required to provide a safe work environment as well as for safe passage of traffic. It shall be incumbent upon the Contractor to supply all required light boards, barricades, signs, flaggers, or other resources as necessary to ensure safe traffic conditions.

**SPECIAL PROVISION  
FOR  
CLEARING**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. This section includes all labor, material, and equipment necessary to clear the site and removal all trees, stumps, and corduroy, regardless of size, within the identified project limits as shown on the construction plans. All work is to be performed in accordance with MDOT Standard Specifications for Construction Section 201 and 202. It shall be the contractor's responsibility to verify the limits of disturbance as shown on the plans.

To prevent the spread of Oak Wilt Disease, any oak trees to remain on site shall be protected from injury during construction. If pruning or removal is required for on-site oak trees, it must be done during the dormant season. If an oak tree is injured during construction, the wounded area of the tree shall be immediately treated with commercial tree paint or wound dressing.

**PART 2 - EXECUTION**

- 2.01 All work shall be in accordance with the MDOT Standard Specifications for Construction Section 201 and 202.

**PART 3 - MEASUREMENT AND PAYMENT**

- 3.01 The completed work will be measured each and will be paid for at the contract price for the following Contract Item (pay item):

Contract Pay Item	Pay Unit
Clearing	LSUM

END OF SECTION

**SPECIAL PROVISION  
FOR**

**EROSION CONTROL, INLET PROTECTION, FABRIC DROP, MODIFIED**

- a. Description.** This work consists of furnishing and installing acceptable inlet protection devices (devices).

This work consists of providing all labor, equipment and materials necessary to furnish, install, maintain, and dispose of collected material and remove devices at the locations directed by the Engineer.

- b. Materials.** The following devices are approved for use:

1. Siltsack Type B, Regular Flow, by ACF Environmental, Inc.
2. Dandy Curb Bag, Dandy Bag, Dandy Curb Sack, Dandy Sack, or Dandy Pop by Dandy Products, Inc.
3. Approved equal.

Ensure provided devices are sized appropriately for the drainage structures in which they will be installed. Install devices per manufacturer's recommendations.

- c. Construction.** Install, maintain and remove the devices according to the manufacturer's guidelines. Remove material collected by the devices according to the manufacturer's guidelines or as directed by the Engineer.

Dispose of collected material in accordance with Subsection 205.03.P of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction. Those devices that are no longer needed and have been removed may be reused elsewhere on the project as approved by the Engineer.

- 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>
Erosion Control, Inlet Protection, Fabric Drop, Modified	Each

**Erosion Control, Inlet Protection, Fabric Drop, Modified** will be paid for as each and will be installed, maintained, removed and reinstalled at separate locations within the project limits.

**SPECIAL PROVISION  
FOR  
SANITARY STRUCTURE COVER, ADJ**

- a. **Description.** This work consists of adjusting sanitary sewer structures shown on the plans or approved by the Engineer.
- b. **Materials.** Sanitary manholes must be in accordance with Section 403 of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, Standard Plan R-1 series and the Municipality’s Standards. Joints must meet ASTM C 923. The sanitary manhole cover must be in accordance with the Municipality Standard as shown on the plans.
- c. **Construction.** Perform all work in accordance with Sections 203, 206, 402 and 403 of the MDOT 2012 Standard Specifications for Construction as well as federal, state and local requirements. The riser section must be constructed in accordance with ASTM C 478.
- d. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

<b>Pay Items</b>	<b>Pay Unit</b>
Sanitary Structure Cover, Adj,	Each

**Sanitary Structure Cover, Adj**, will be measured in accordance with Sanitary Structure Cover, Adj, and paid for in accordance with the above pay item. Additional depth of adjustment beyond 6 inches will be considered a part of this pay item and will not be paid for separately.

**SPECIAL PROVISION  
FOR**

**SUBGRADE UNDERCUTTING, SPECIAL**

- a. Description.** The item of **Subgrade Undercutting, Special** shall be in accordance with Section 205 of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction except as herein specified. **Subgrade Undercutting, Special** shall include undercutting any unsuitable material as determined by the Engineer, placing geotextile separator, and placing backfill.
- b. Materials.** The material used for **Subgrade Undercutting, Special** shall meet the requirements as specified in Section 902 and 910 of the MDOT 2012 Standard Specifications for Construction except as modified herein. The backfill material shall meet the requirements of MDOT 6A limestone aggregate, 21AA limestone aggregate, or Granular Material Class II as required.
- c. Construction.** Construction methods shall follow Section 205 of the MDOT 2012 Standard Specifications for Construction. The Contractor shall excavate any areas where peat, muck, marl, underlying very soft clay, or other unacceptable material is present under the proposed path. Subgrade Undercutting, Special shall be performed as established by the Engineer, and the excavated material shall become the property of the Contractor.

Following removal of the material compact the undercut work area and allow inspection by the Engineer prior to backfilling. Geotextile, Separator shall be placed between the backfill material and the subgrade.

Backfill material shall be MDOT 6A limestone aggregate in high ground water areas, MDOT 21AA in dry clay areas, and Granular Material Class II in existing sandy areas. The Engineer must approve the backfill material for each undercut site.

- d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Subgrade Undercutting, 21AA, Special	Cubic Yard
Subgrade Undercutting, 6A, Special	Cubic Yard
Subgrade Undercutting, Class II, Special	Cubic Yard

**Subgrade Undercutting, Special** shall be measured in place. All materials, labor and equipment necessary to install **Subgrade Undercutting, Special** will be included in the pay item, including **Geotextile, Separator**.

**SPECIAL PROVISION  
FOR  
DETECTABLE WARNING SURFACE**

- a. Description.** This work shall consist of all equipment, materials, and labor required to furnish and install RediMat Surface Applied Detectable/Tactile Warning Tile where it has been called for in the plans per the manufacture's recommendation.
- b. Materials.** “RediMat” surface applied detectable warning tile, color “Yellow” within the Metropark and color “Red” elsewhere, as Manufactured by DWS (Detectable Warning Systems) or approved equal.
- c. Construction Methods.** The Contractor shall place detectable warning tile per manufacturer's recommendation and as directed by the Engineer. Ensure surface applied products include mechanical anchors. Installation shall meet current ADA requirements.
- d. Measurement and Payment.** The completed work will be measured in place by length along the center of the 24 inches wide detectable warning material at the required location and will be paid for at the contract price for the following Contract Item (pay item).

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Detectable Warning Surface	Linear Foot (LF)

Detectable Warning Surface shall include all materials, labor and equipment necessary to perform the completed work herein as described and in accordance with MDOT 803.

**SPECIAL PROVISION  
FOR  
SIGNS, PERMANENT, COMPLETE**

- a. Description.** This work consists of providing, fabricating, and erecting traffic signs and supports in accordance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), the Michigan Standard Highway Signs Manual, and the Department Sign Support Standards. Work shall be completed according to the MDOT Standard Specifications for Construction (Section 810) and the Contract working drawings.
  
- b. Materials.** All materials shall be per section 912 and 919.
  - 1. Hike/Bike Trail - All posts shall be 4"x4" (nominal) wood posts. Posts shall have an one inch (1") 45 degree bevel cut on all side at the top of the post. The size of hike/bike trail signs shall be from the Shared-Use Path column from table 9B-1 Bicycle Facility Sign and Plaque Minimum Sizes of the MMUTCD.
  - 2. Roadways and Parking Lots - All posts shall be galvanized, 3 lbs per foot or 2 inch square posts per MDOT Standard Plan Sign-200-C. Splices and sleeves are only allowed for installations requiring post to be greater than 16 foot in length. Pedestrian Crossing Sign shall be W11-15 (Fluorescent Yellow-Green) with supplemental arrow W16-7P L/R (Fluorescent Yellow-Green). The size of roadway and parking lot signs shall be from the Typical column from table 5A-1 Signs and Plaques Sizes on Low-Volume Roads of the MMUTCD.
  
- c. Construction Methods.** The Contractor shall place signs and post per Section 810 and construction shall conform to Section 810 of the MDOT Standard Specifications for Construction.
  - 1. Hike/Bike Trail - Edge of signs shall be a minimum of 3' off the edge of pavement and the lower edge of the parent sign a minimum of 4' above the nearest edge of pavement.
  - 2. Roadways and Parking Lots - Edge of signs shall be a minimum of 6' off the edge of pavement and the lower edge of the parent sign a minimum of 6' above the nearest edge of pavement. In areas where pedestrian movement is likely, lower edge of parent sign shall be 7' minimum.
  
- d. Measurement and Payment.** The completed work will be measured as a lump sum and will be paid for at the contract price for the following Contract Item (pay item):

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Signs, Permanent, Complete	Lump Sum (LS)

Signs, Permanent, Complete shall include all materials, labor and equipment necessary to perform the completed work herein as described.

**SPECIAL PROVISION  
FOR  
SIGNS SHEETING SUMMARY**

**a. Description.** This Special Provision covers the manufacturing requirements for Permanent Signage for the Authority. In general, all signage shall be made to the minimum requirements of the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and the Michigan Standard Highway Signs Manual. Work shall be completed according to the MDOT Standard Specifications for Construction (Section 919).

**b. Materials.** All materials shall be per section 919.

1. Sign Panel Materials

- a. Plywood shall be a minimum of 5/8", exterior grade, black or natural color overlay on both sides. Vertical splices of the plywood signs will not be permitted. Corners shall be rounded.
- b. Aluminum sheet shall meet the requirements of ASTM B 209 for aluminum alloy 6061-T6, 5052-H38, or 5154-H38. Sheeting shall be 0.080" thick, corners shall be rounded.

2. Sign Face and Legend Materials

- a. Select reflective sheeting from MDOT Qualified Products List, 919.02B1 ([http://www.michigan.gov/documents/MDOT-Material\\_Source\\_Guide\\_Qualified\\_Products\\_84764\\_7.pdf](http://www.michigan.gov/documents/MDOT-Material_Source_Guide_Qualified_Products_84764_7.pdf)). Reflective sheeting shall meet ASTM D 4956 specifications for high-intensity retroreflective sheeting.

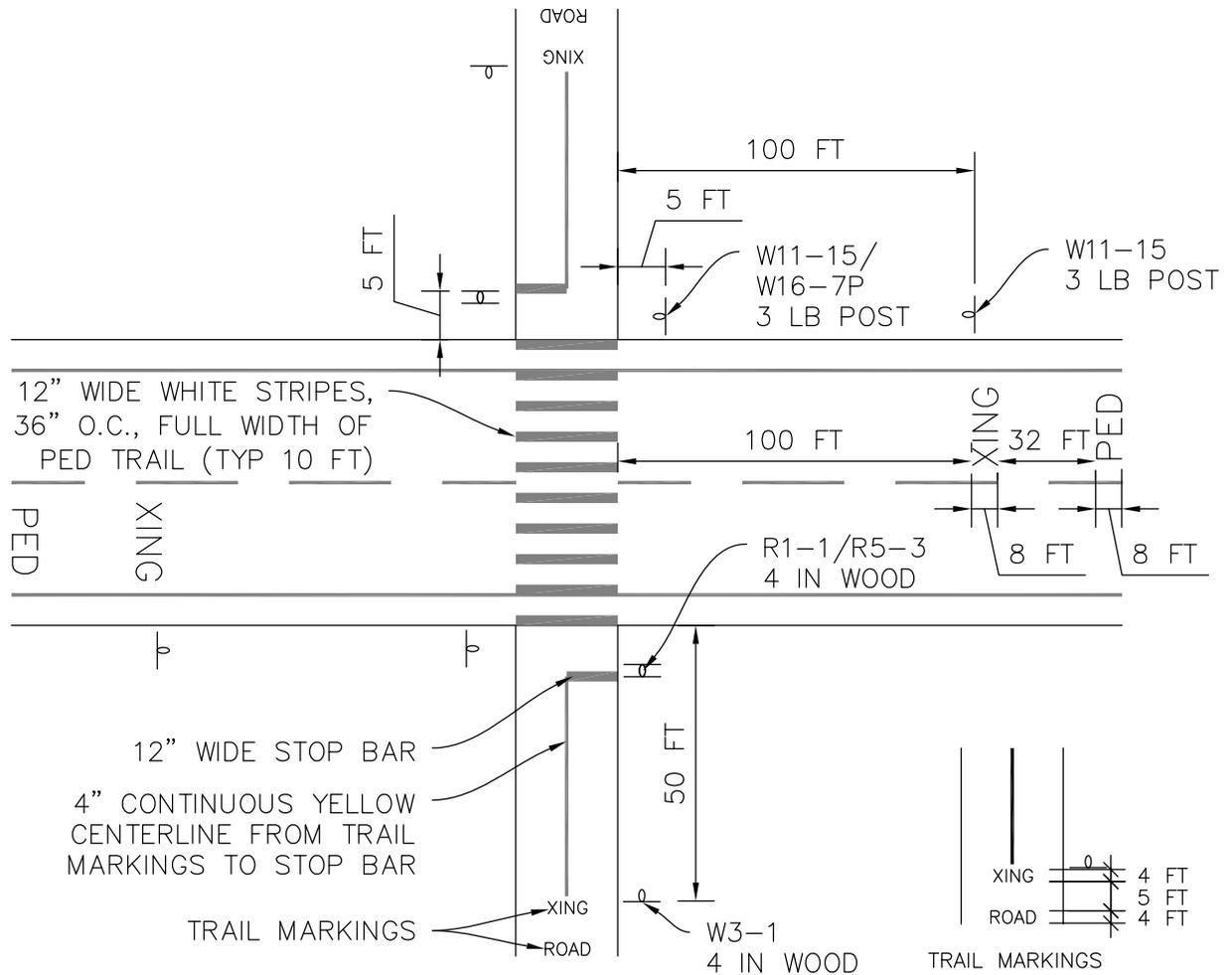
Retroreflective Sign Sheeting Material Guidelines			
Sign Category	Type	Material Type	Color
Yellow Warning Signs	W-series (Non Ped Crossing)	ASTM Type IX	Fluorescent Yellow
Pedestrian Crossing	W11-2, W11-15, W16-7P (L or R)	ASTM Type IX	Fluorescent Yellow green
Guide Signs	White legends; borders; and arrows	ASTM Type IV	White
Regulatory Signs	Stop, Yield, parking, black on white signs	ASTM Type IV	-

**c. Construction Methods.** Fabricate and apply legends in accordance with the Michigan Standard Highway Signs Manual. Finished product shall be free from bubbles, scratches and any other defects.

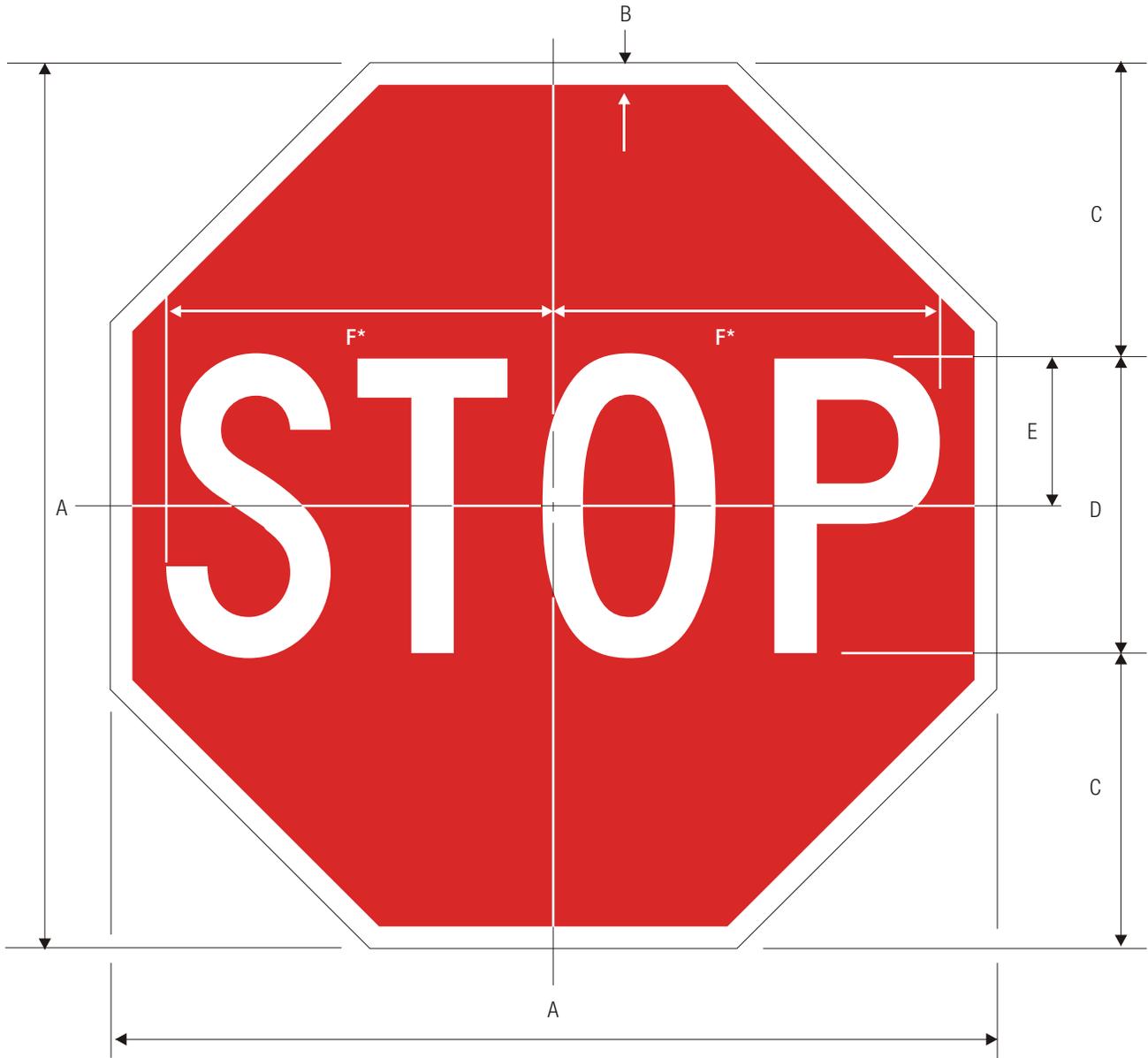
HIKE-BIKE TRAIL CROSSING NOTES:

1. ROADWAY, PARKING LOT AND INFORMATIONAL SIGNS TO BE INSTALLED ON 3 LB STEEL POSTS UNLESS NOTED OTHERWISE. BOTTOM HEIGHT OF PARENT SIGN SHALL BE 6 FT MINIMUM MEASURED FROM SURFACE OF ROADWAY EDGE. EDGE OF SIGN SHALL BE 6 FT MINIMUM FROM EDGE OF PAVED ROADWAY.
2. HIKE-BIKE TRAIL SIGNS SHALL BE MOUNTED ON 4"x4" TREATED WOOD POSTS. THE TOP OF THE POST SHALL BE CHAMFERED AT 45 DEGREES. BOTTOM HEIGHT OF PARENT SIGN SHALL BE 4 FT MINIMUM (5 FT MAXIMUM) MEASURED FROM SURFACE OF TRAIL EDGE. EDGE OF SIGN SHALL BE 3 FT MINIMUM (5 FT MAXIMUM) FROM EDGE OF PAVED TRAIL.
3. ALL PERMANENT SIGNS SHALL BE PER MDOT 919, TYPE III (0.080 ALUMINUM SHEET) UNLESS OTHERWISE NOTED
4. ALL PAVEMENT MARKINGS SHALL BE WATERBORNE, PER MDOT SECTION 811.
5. PAVEMENT MARKINGS SHALL BE REFLECTIVE,
6. HIKE-BIKE TRAIL STOP BARS TO BE 12" WIDE, INSTALLED IN CONJUNCTION WITH NEW STOP SIGNS.

SIGN	SHTG MATL	DESCRIPTION
R1-1 (18")	ASTM TYPE IV	STOP SIGN
R5-3 (24")	ASTM TYPE IV	NO MOTOR VEHICLES
W3-1 (18")	ASTM TYPE IX	STOP AHEAD
W11-15 (30")	ASTM TYPE IX	COMBINATION BIKE AND PEDESTRIAN CROSSING (YELLOW-GREEN)
W16-7P (24"x12")	ASTM TYPE IX	ARROW (YELLOW-GREEN)



TYPICAL HIKE-BIKE TRAIL CROSSING  
NO SCALE



R1-1  
STOP

\*Reduce spacing 40%

	A	B	C	D	E	F
PED TRAILS →	18	.375	6	6 C	3	7.75
	24	.625	8	8 C	4	10
VEHICLES → <b>C</b>	30	.75	10	10 C	5	12.5
	36	.875	12	12 C	6	15
	48	1.25	16	16 C	8	20

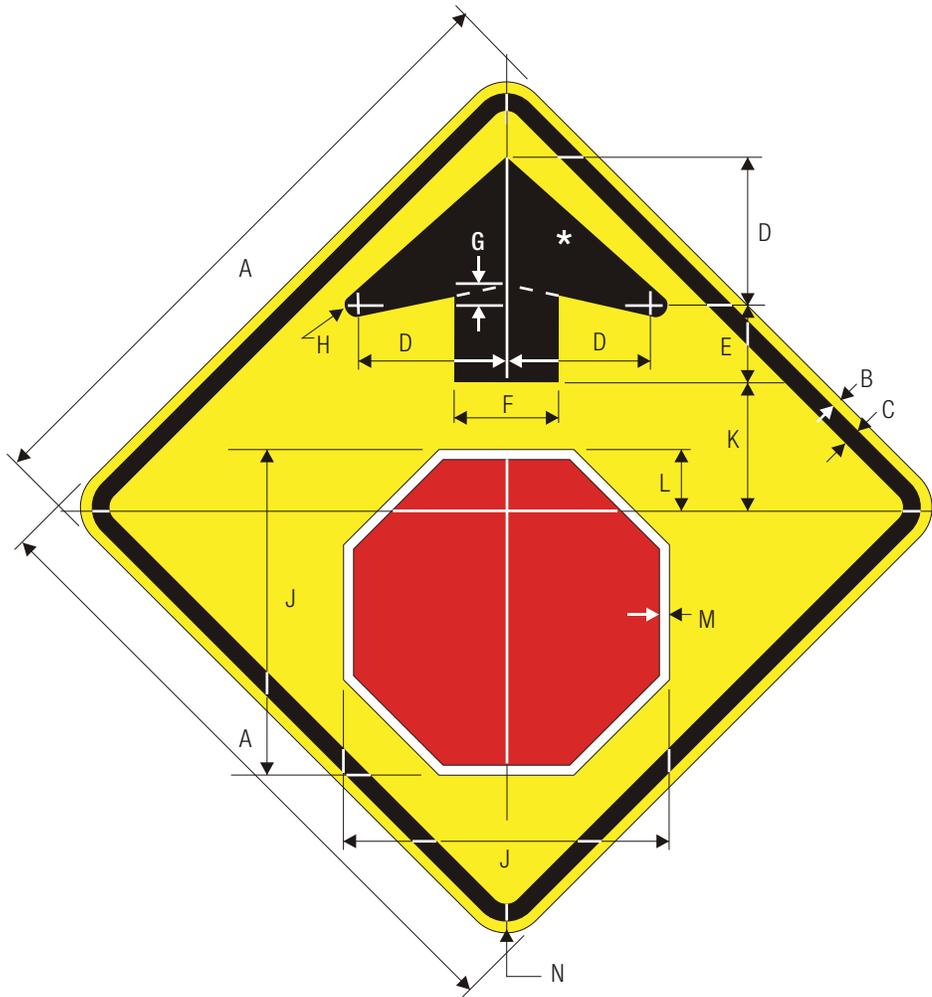
COLORS: LEGEND — WHITE (RETROREFLECTIVE)  
BACKGROUND — RED (RETROREFLECTIVE)



R5-3

NO MOTOR VEHICLES

COLORS: LEGEND — BLACK  
 BACKGROUND — WHITE (RETROREFLECTIVE)



W3-1

STOP AHEAD

\*See page 6-3 for symbol design.

A	B	C	D	E	F	G	H	J	K	L	M	N
18	.375	.625	4.5	2.25	3	.375	.187	9.5	3	1.75	.313	1.5
24	.375	.625	6	3	4	.5	.25	12.562	5	2.25	.375	1.5
30	.5	.75	7.5	3.75	5	.625	.313	15.75	6.25	2.875	.5	1.875
36	.625	.875	9	4.5	6	.75	.375	19	7.5	3.5	.625	2.25
48	.75	1.25	12	6	8	1	.5	25.125	10	4.5	.75	3

**WARNING SIGN COLORS:**

BORDER & ARROW – BLACK

SYMBOL – WHITE BORDER / RED BACKGROUND (RETROREFLECTIVE)

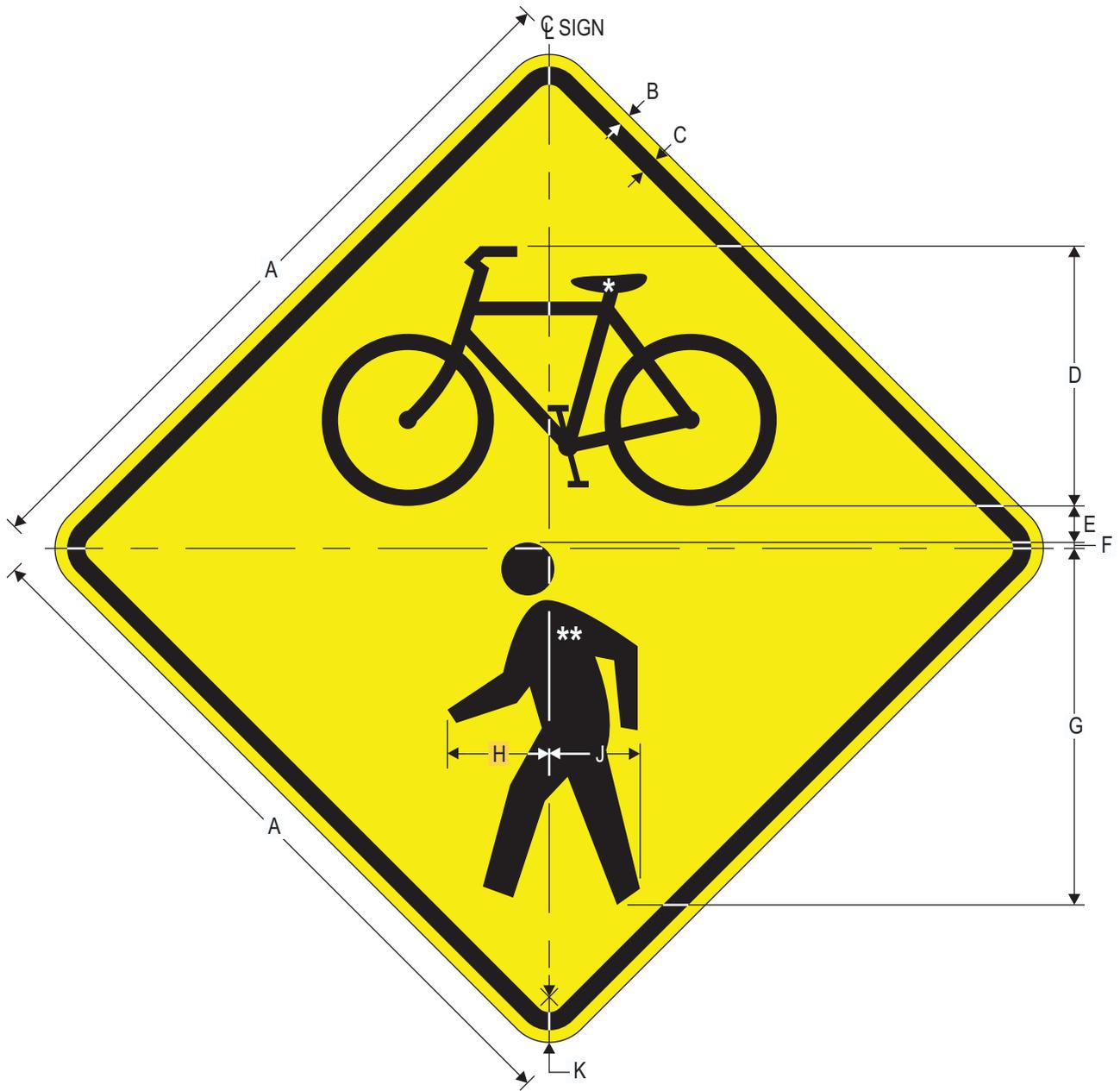
BACKGROUND – YELLOW (RETROREFLECTIVE)

**TTC COLORS:**

BORDER & ARROW – BLACK

SYMBOL – WHITE BORDER / RED BACKGROUND (RETROREFLECTIVE)

BACKGROUND – ORANGE (RETROREFLECTIVE)



W11-15

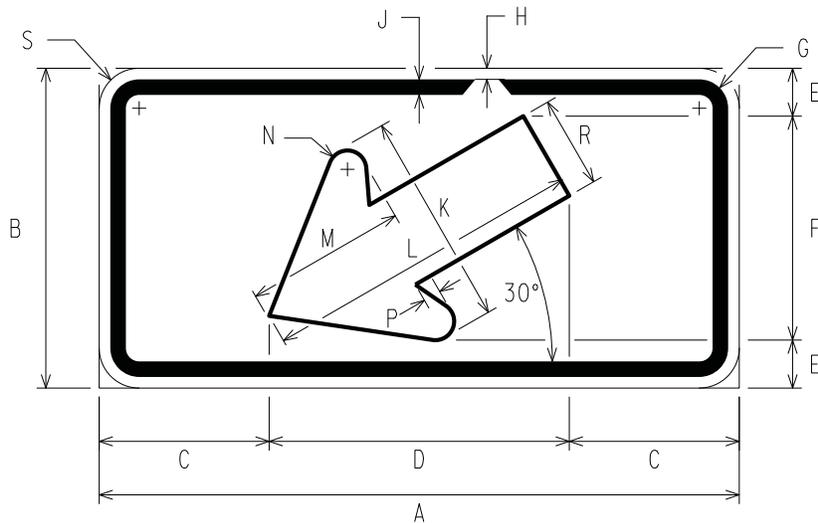
COMBINATION BIKE AND PEDESTRIAN CROSSING

\* See page 6-7 for symbol design.

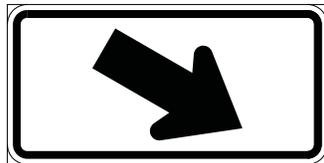
\*\* See page 6-10 for symbol design.

A	B	C	D	E	F	G	H	J	K
18	0.375	0.625	6.25	1	0.125	8.875	2.524	2.25	1.5
24	0.375	0.625	8.5	1.375	0.125	11.875	3.366	3	1.5
30	0.5	0.75	10.75	1.75	0.25	14.75	4.207	3.75	1.875
36	0.625	0.875	12.75	2.125	0.375	17.625	5.049	4.5	2.25
48	0.75	1.25	17	2.75	0.375	23.625	6.732	6	3

COLORS: LEGEND, BORDER — BLACK  
 BACKGROUND — YELLOW (RETROREFLECTIVE) OR  
 FLOURESCENT YELLOW-GREEN (RETROREFLECTIVE)



W16-7P(L)



W16-7P(R)

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
MINIMUM	30	15	8	14	2.33	10.34	1.875	.5	.75	10.19	15	7.37	.76	.7	3.75	1.5
STANDARD	36	18	9.5	17	2.75	12.5	2.25	.625	.875	12	18	9	1.06	1	5.18	1.5
HCMA	24	12	6.5	11	2	8	1.5	.5	.625	8	12	6	.5	.7	3.45	1.5

COLORS

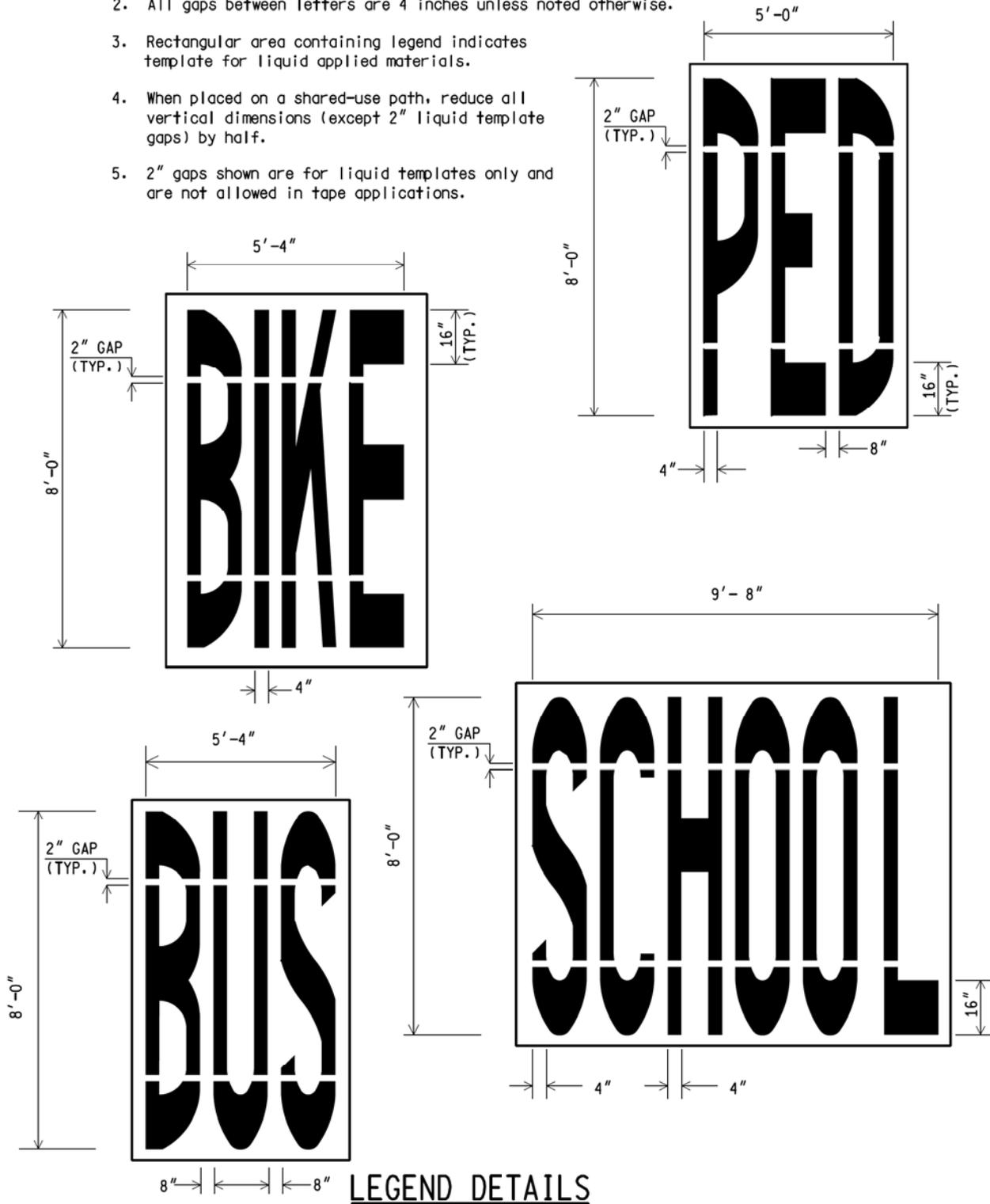
SYMBOL AND BORDER - BLACK (NON-REFL.)  
BACKGROUND - YELLOW (REFL.)

COLORS

SYMBOL AND BORDER - BLACK (NON-REFL.)  
BACKGROUND - YELLOW-GREEN (REFL.)  
(SCHOOL SIGN)

MI/2012

- NOTES: 1. All letters are 16 inches wide unless noted otherwise.  
 2. All gaps between letters are 4 inches unless noted otherwise.  
 3. Rectangular area containing legend indicates template for liquid applied materials.  
 4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.  
 5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.



**LEGEND DETAILS**



PREPARED BY  
DESIGN DIVISION

DRAWN BY: LMF

CHECKED BY: JGM

DEPARTMENT DIRECTOR  
Kirk T. Stuedle

APPROVED BY: Kimberly Avery  
DIRECTOR, BUREAU OF FIELD SERVICES

Bradley C. Wiefelich  
2017.09.20 10:23:51  
-04'00"

APPROVED BY: DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**PAVEMENT ARROW  
& MESSAGE DETAILS**

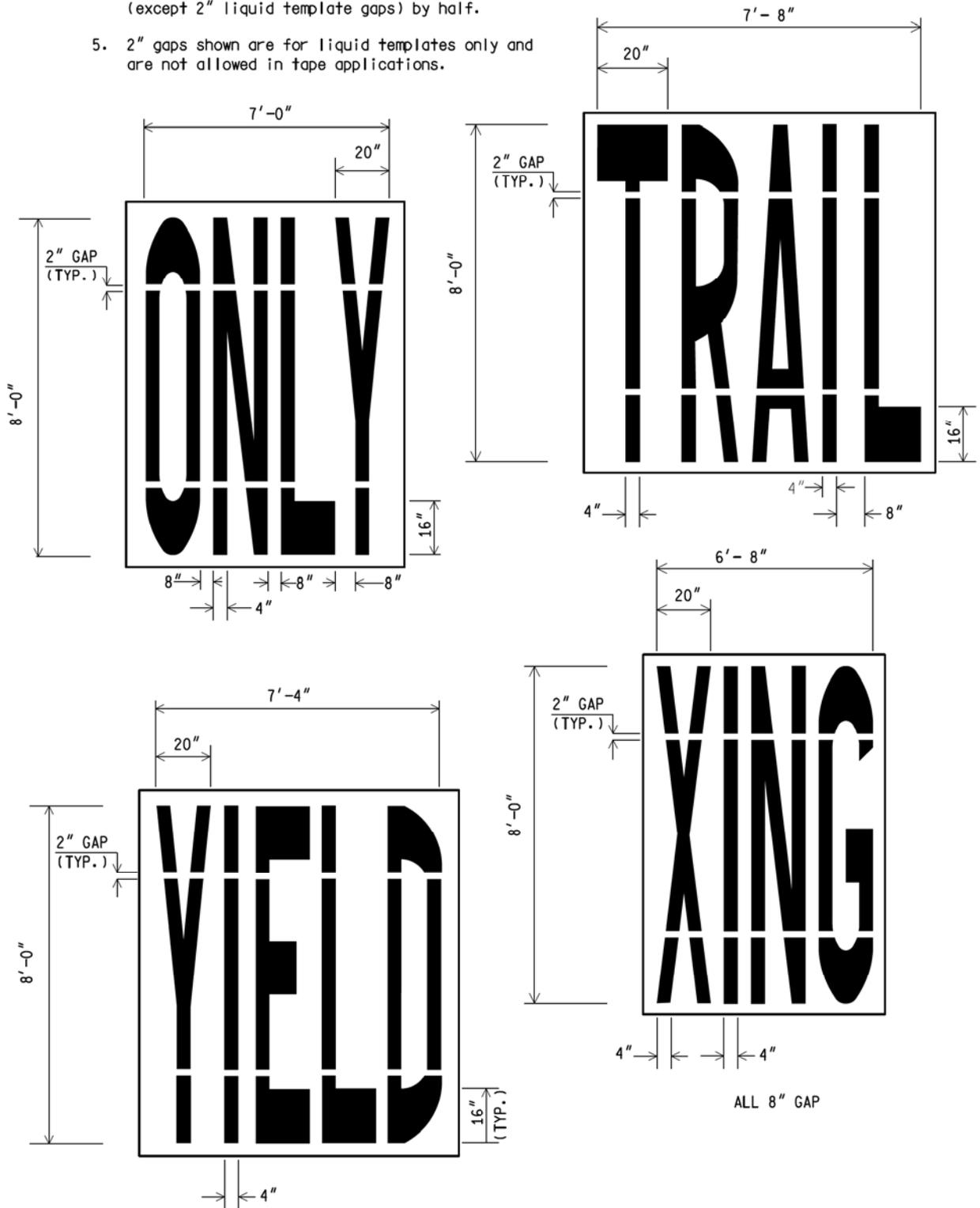
08/23/17  
F.H.W.A. APPROVAL

01/22/17  
PLAN DATE

PAVE-900-F

SHEET  
1 OF 8

- NOTES: 1. All letters are 16 inches wide unless noted otherwise.
2. All gaps between letters are 4 inches unless noted otherwise.
3. Rectangular area containing legend indicates template for liquid applied materials.
4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.
5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.



**LEGEND DETAILS**

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

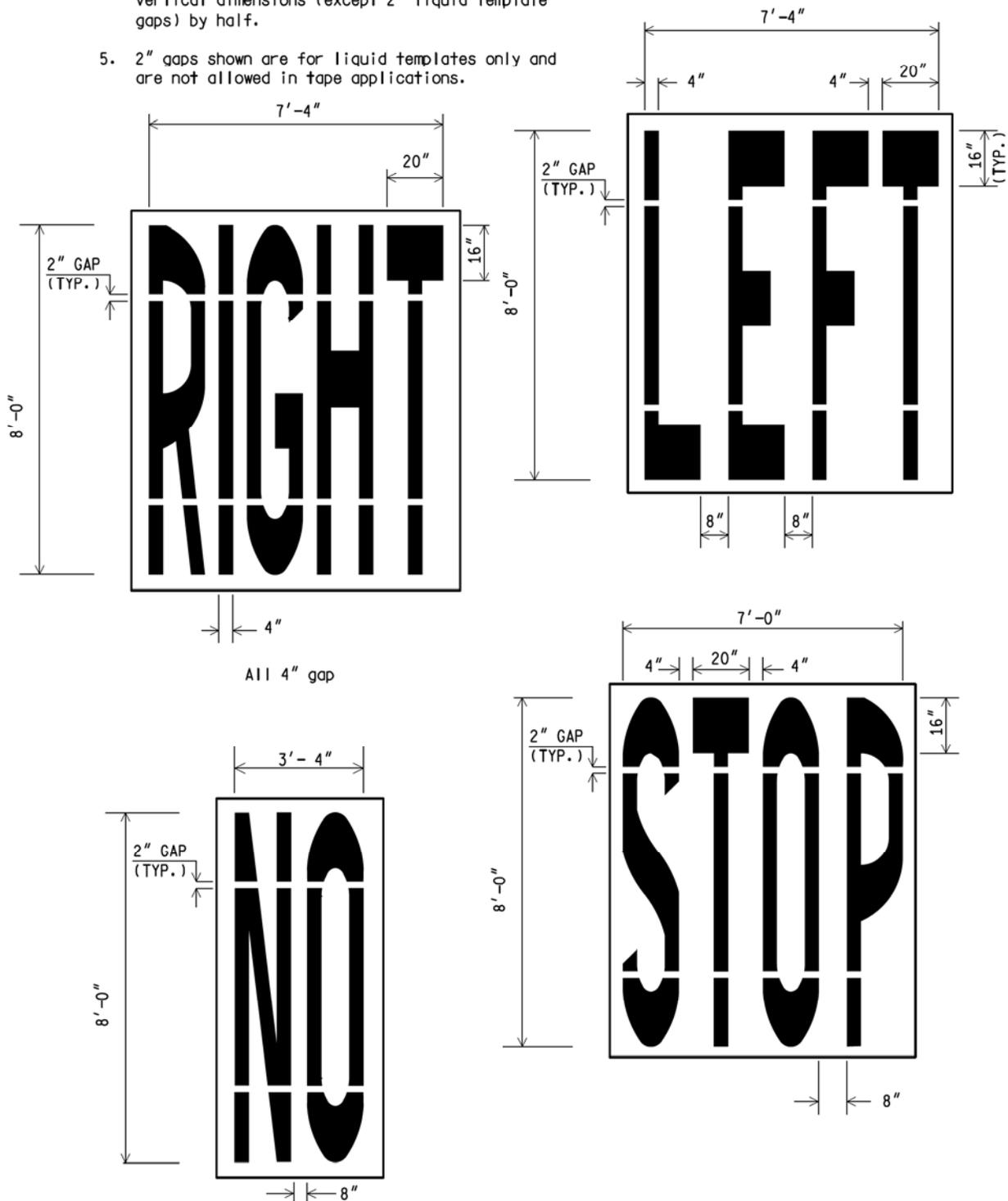
08/23/17  
F.H.W.A. APPROVAL

01/22/17  
PLAN DATE

PAVE-900-F

SHEET  
2 OF 8

- NOTES: 1. All letters are 16 inches wide unless noted otherwise.
2. All gaps between letters are 4 inches unless noted otherwise.
3. Rectangular area containing legend indicates template for liquid applied materials.
4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.
5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.



All 4" gap

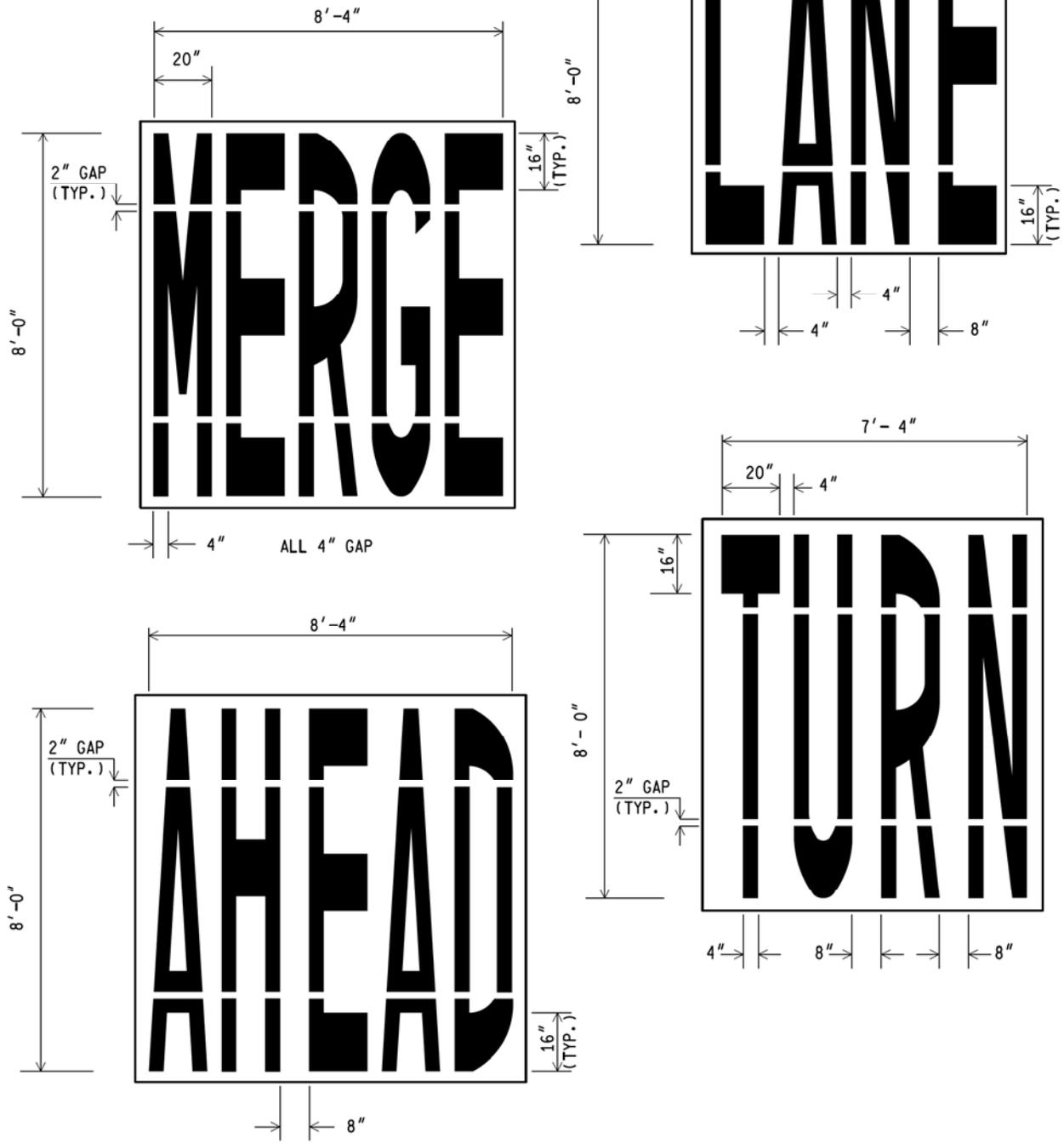
### LEGEND DETAILS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN	08/23/17 F.H.W.A. APPROVAL	01/22/17 PLAN DATE	PAVE-900-F SHEET 3 OF 8
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

- NOTES: 1. All letters are 16 inches wide unless noted otherwise.  
 2. All gaps between letters are 4 inches unless noted otherwise.  
 3. Rectangular area containing legend indicates template for liquid applied materials.  
 4. When placed on a shared-use path, reduce all vertical dimensions (except 2" liquid template gaps) by half.  
 5. 2" gaps shown are for liquid templates only and are not allowed in tape applications.



**LEGEND DETAILS**

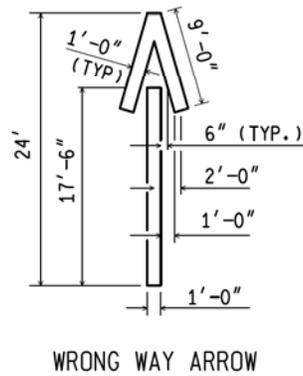
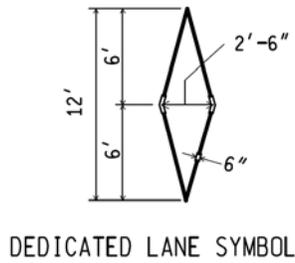
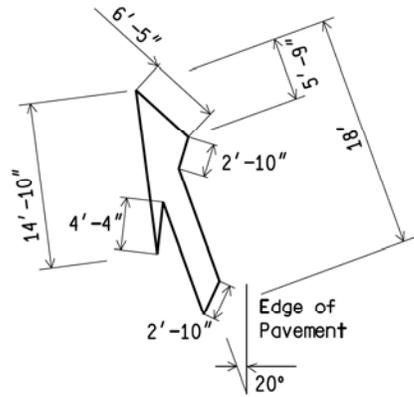
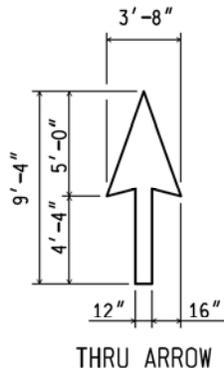
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN	08/23/17 F.H.W.A. APPROVAL	01/22/17 PLAN DATE	PAVE-900-F SHEET 4 OF 8
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



- NOTE: 1. Templates for liquid applied materials on this sheet do not allow gaps.
2. When placed on a shared-use path, reduce all dimensions by half.



## PAVEMENT ARROW/SYMBOL DETAILS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

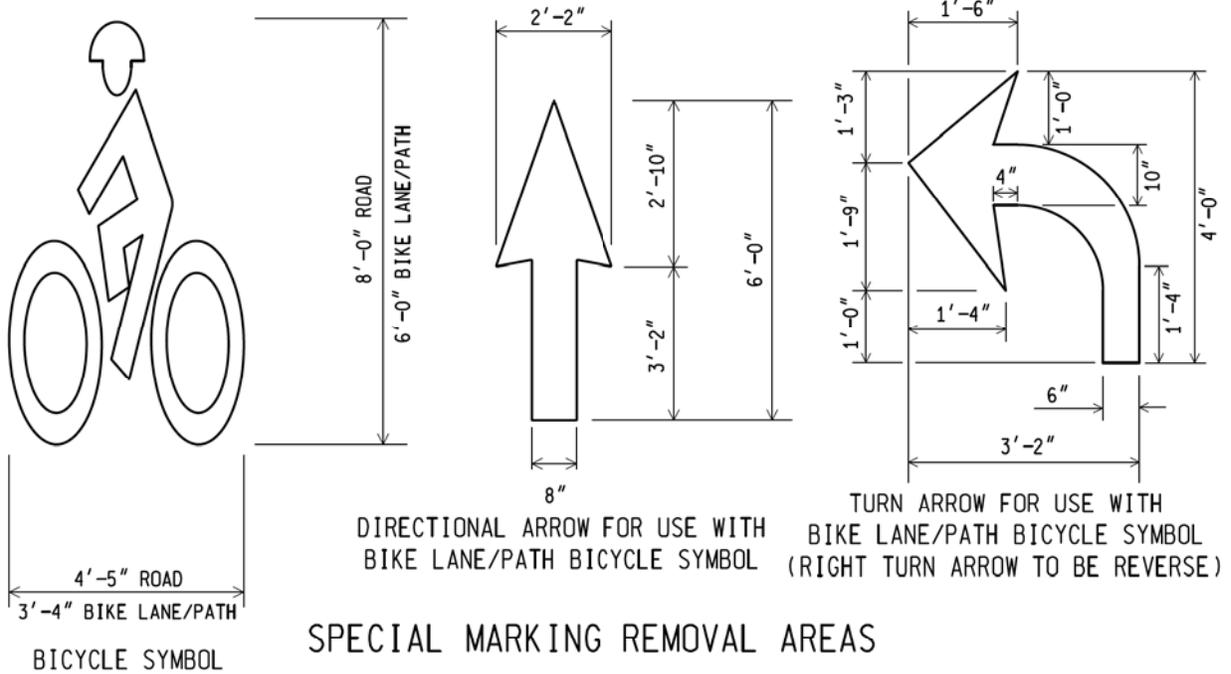
08/23/17  
F.H.W.A. APPROVAL

01/22/17  
PLAN DATE

PAVE-900-F

SHEET  
6 OF 8

- NOTES: 1. Templates for liquid applied materials on this sheet do not allow gaps.
2. Smaller (bike lane/path) bicycle symbol is to be used in bike lanes (including bike lanes on roadways), and on paths/trails.
3. The larger (road) bicycle symbol is intended to be used in conjunction with the "XING" legend in vehicle travel lanes in advance of a bike path/trail crossing the roadway.

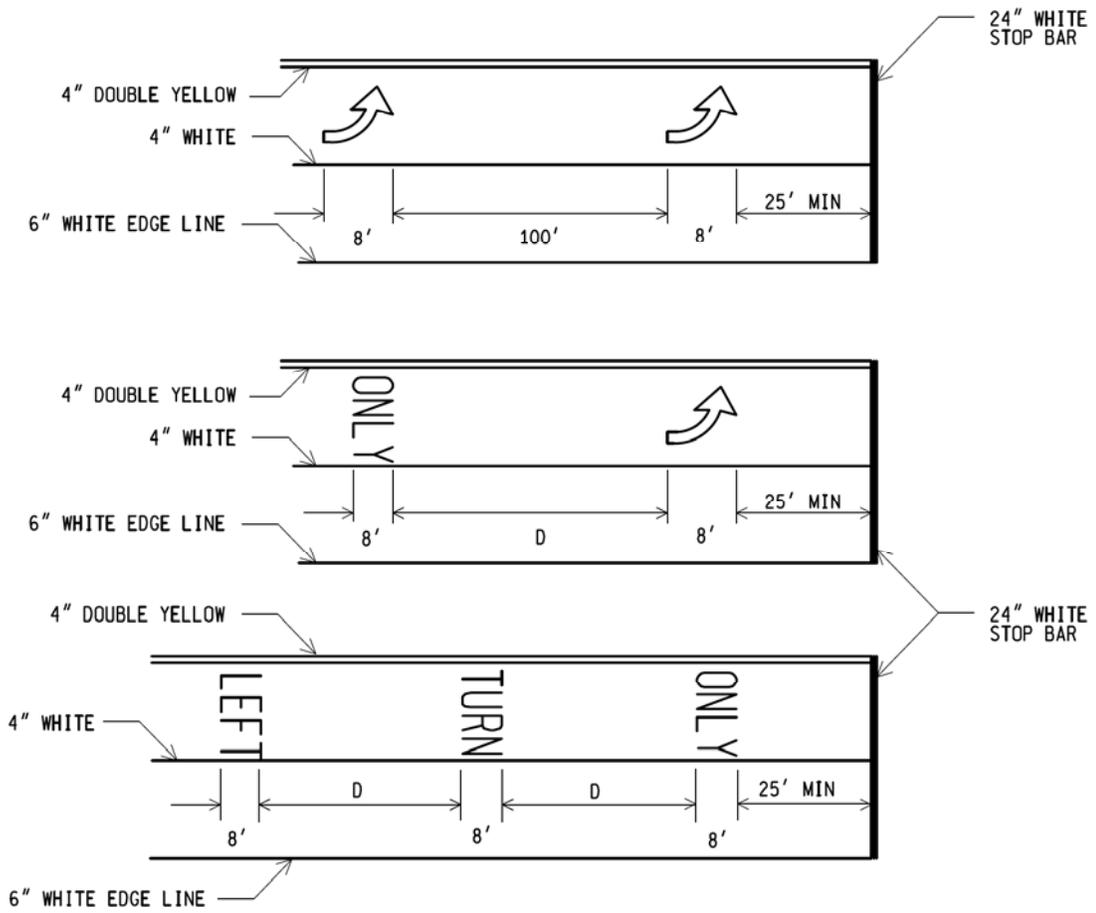


### SPECIAL MARKING REMOVAL AREAS

LEGEND	AREA (SFT)	SYMBOL	AREA (SFT)
AHEAD	67	ACCESSIBLE	12
BIKE	43	BICYCLE (ROAD)	24
BUS	43	BICYCLE (LANE/PATH)	16
LANE	53	DEDICATED LANE (HOV)	11
LEFT	59	DIRECT. ARROW (BIKE)	9
MERGE	67	LEFT, RIGHT ARROW	29
NO	27	LT ROUNDABOUT ARROW	18
ONLY	56	LT, RT, THRU ARROW	41
PED	40	MERGE ARROW	42
RIGHT	59	RAILROAD	64
SCHOOL	77	RAILROAD-ALTERNATE	75
STOP	56	RT, LT ROUNDABOUT ARROW	23
TRAIL	62	RT, THRU, LT ROUNDABOUT ARROW	29
TURN	59	SHARROW	21
XING	53	THRU ARROW	12
YIELD	59	THRU, LT ROUNDABOUT ARROW	24
		THRU, LT TURN ARROW	29
		THRU, RT TURN ARROW	29
		TURN ARROW, LT OR RT	16
		TURN ARROW, LT OR RT (BIKE)	5
		WRONG WAY ARROW	35

NOT TO SCALE

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



TYPICAL SPACING OF ARROW AND PAVEMENT MESSAGES

POSTED SPEED (MPH)	DISTANCE "D" (FT)
25 AND BELOW	32
30-35	48
40-45	64
50 AND ABOVE	80

**NOTES:**

1. All special markings (arrow, message and symbol) shall be white.
2. When arrow and pavement message are used together, the arrow should be located downstream of the pavement message and separated from the pavement message by a distance of "D" (measured from the top of the message to the base of the arrow) as shown above.
3. When a series of pavement messages are used, they should be separated by a distance of "D" related to the posted speed, as shown in the table above. All symbols and legends shall be positioned in the center of the lane.

NOT TO SCALE

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

**SPECIAL PROVISION  
FOR**

**PERMANENT PAVEMENT MARKINGS**

- a. Description.** This work consists of providing and applying reflective and non-reflective permanent pavement markings in accordance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). Provide markings, shapes, spacing, and dimensions that conform to the MDOT Pavement Marking Standard Plans.
- b. Materials.** Provide materials in accordance with Section 920 of the MDOT Standard Specifications for Construction and as modified herein.
1. Glass Beads (not required for Parking Spaces)
  2. Waterborne Pavement Marking Material
  3. Low Temperature Waterborne Pavement Marking Material
- c. Construction Methods.** Per Section 811 of the MDOT Standard Specifications for Construction modified as follows:
1. Layout: The Engineer will be responsible for staking, marking or otherwise indicating the beginning and ending of pavement markings, all other layout work necessary will be the responsibility of the Contractor.
  2. Single Line: Single line of the color specified shall be applied as a solid 4 inch minimum width line, the paint shall be applied at an approximate rate of 15 gallons per mile of single line.
  3. Broken Line: Broken line of the color specified shall be applied as a 4 inch minimum width line, on a cycle of 10 feet of line and 30 feet of gap, unless otherwise directed by the Engineer, The paint shall be applied uniformly at an approximate rate of 4 gallons of paint per mile of Broken Line or 15 gallons per mile of actual cumulative painted line.
  4. Double Line: Double Line of the color specified shall be applies as two solid 4-inch minimum width lines separated by a discernable space (approximately 6 inches). The paint shall be applied uniformly at an approximate rate of 30 gallons per mile of Double Line, or 15 gallons per mile measured along each individual 4-inch line comprising the Double Line.
  5. Single Line and Broken Line: No passing zones and other areas as shown or directed shall be marked with a 4-inch minimum width solid yellow line and an adjacent broken yellow line as indicated in figures 3-2, 3-3, 3-7, and 3-8 of the Michigan Manual of Uniform Traffic Control Devices.

6. Pavement Edge Lines: Pavement Edge Lines of the color specified shall be applied as a solid 4-inch minimum width line. The paint shall be applied uniformly at an approximate rate of 15 gallons per mile of Edge line.
7. Wide Line: Wide Line of the color specified shall be applied as a solid 12-inch minimum width line. The paint shall be applied at an approximate rate of 30 gallons per mile or wide Line, or 15 gallons per mile measured along each individual 4-inch line comprising the wide Line.
8. Legends and Arrows: Paint color and legend shall be as specified on the plans and directed by Engineer.
9. Cross Walks: Markings shall be 12-inch wide solid white lines with 24-inch wide spacing per the 'Detail of Special Emphasis Crosswalk Marking' from MDOT Detail Pave-945-B.

**d. Measurement and Payment.** The completed work will be measured and paid for at the contract unit price for the following Contract Item (pay item):

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Pavt Mrkg, Waterborne, Roadway	Lump Sum (LS)
Pavt Mrkg, Waterborne, Parking Lot	Lump Sum (LS)
Pavt Mrkg, Waterborne, Hike/Bike Trail	Lump Sum (LS)

The Contract Unit price for pavement marking includes all labor, equipment and materials necessary to complete the work as shown on the plans and directed by the Engineer.

**SPECIAL PROVISION  
FOR**

**TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION ZONE OPERATIONS**

- a. Description.** This work consists of protecting, regulating, warning, guiding, and maintaining traffic through and around the Construction Influence Area (CIA). The CIA includes any area of work including roadways, trails, and site improvements. The work shall be completed according to the current MDOT Standard Specifications for Construction and the Contract working drawings. The Contractor shall be solely responsible for all traffic control, the Owner will NOT supply any materials, equipment, or manpower to assist with this work. The work shall be performed in accordance with Section 812 of the Standard Specifications for Construction.
- b. Materials.** Per Section 812 and 922 of the MDOT Standard Specifications for Construction.
- c. Construction Methods.** Per Section 812 and 922 of the MDOT Standard Specifications for Construction.
- d. Measurement and Payment.** The completed work will be measured and paid for at the contract unit price for the following Contract Item (pay item):

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Temporary Traffic Control for Construction Zone Operations	Lump Sum (LS)

The Contract Unit price for temporary traffic control includes all cost to furnish, install, maintain and remove any and all temporary traffic control items. Additional payment will not be made for additional traffic control markings and devices not shown on the plans but required to be furnished, installed, maintained and removed to allow the Contractor to provide a safe travel way within and outside of the CIA.

**SPECIAL PROVISION  
FOR  
TURF ESTABLISHMENT**

- a. Description.** This work consists of conducting soil tests, preparing the soil, and placing sod or seed and mulch to permanently stabilize disturbed areas as shown on the plans. Establish turf in accordance with this section, the MDOT Standard Specifications for Construction, the Soil Erosion and Sedimentation Control (SESC) Manual, and as directed by the Engineer.
- b. Materials.** Per Section 816, 911, and 917 of the MDOT Standard Specifications for Construction except:
  - 1. Seed
    - a. Shall be Fresh, clean and new crop seed mixture. Mixed by approved methods and composed of the following varieties, mixed to the specified proportion by weight and tested to minimum percentages of purity and germination. Supply seed in durable cloth bags. All seed shall be certified “Blue Tag” seed and the Contractor shall not break the seal from the bag until the Owner has inspected each delivery. Tags listing the vendor’s name, seed mix, lot number, net weight of contents, purity and germination, and shall be attached to each bag.

**Type 1: Blue Grass Blend for Irrigated Turf Areas  
(Fine Turf for Golf Courses, Beaches, and Around Buildings in Full Sun. Almost interchangeable with Type 2)**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
“Parade” Blue Grass	33%	98%	90%
“Goldrush” Blue Grass	33%	98%	90%
“Midnight” Blue Grass	33%	98%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Type 2: Blue Grass Blend with Rye for Irrigated Turf Areas  
(Fine Turf for Golf Courses, Beaches, Around Buildings, and Athletic Fields in Full Sun. Has a little more tolerance to wear than Blue Grass Blend)**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
“Goldrush” Blue Grass	50%	98%	90%
“Midnight” Blue Grass	30%	98%	85%
“Manhattan III Rye Grass	20%	98%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Type 3: Blend for Non-Irrigated Sun / Shade Turf Areas  
(Picnic Areas and Golf Course Rough Mix. Almost interchangeable with Type 4)**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
“Pennlawn” Red Fescue	40%	97%	90%
“Parade” Blue Grass	40%	98%	90%
“Manhattan III” Perennial Rye Grass	20%	98%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Type 4: Blend for Non-Irrigated Sun / Shade Turf Areas  
(Picnic Areas and Golf Course Rough needing higher wear tolerance)**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
“Victory” Chewings Fescue	30%	97%	90%
“Pennlawn” Red Fescue	30%	97%	90%
“Parade” Blue Grass	20%	98%	90%
“Manhattan III” Perennial Ryegrass	20%	98%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Type 5: Athletic Field Mix for Non-Irrigated Turf Areas**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
“Wrangler” Tall Fescue	50%	97%	90%
“Parade” Blue Grass	35%	98%	90%
“Manhattan III” Perennial Rye	15%	98%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Type 6: Roadway / Bike Trail Shoulder Mixes for Non-Irrigated Turf Areas**

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u> K
“Pennlawn” Red Fescue	30%	97%	90%
“Parade” Blue Grass	30%	98%	90%
“Manhattan III” Perennial Ryegrass	20%	98%	90%
“Astor” Annual Rye	20%	95%	90%

**Spread at a rate of 4 lbs./1000 sf.**

**Note:**

1. Add .5 lbs./1000 sf. of Annual Rye to above mix(s) if seeding after October 1<sup>st</sup>.
2. Add 1 lbs./1000 sf. of Annual Rye to above mix(s) if seeding areas susceptible to erosion.

- 2. Fertilizer
  - a. A balanced 12-12-12 shall be used unless otherwise directed or approved by the Engineer. Apply at a rate equal to 1 lb of actual nitrogen per 1,000 sq.ft. (43 lbs/acre). Omit if applied with hydroseeding or hydromulching.
- 3. Mulch
  - a. Straw mulch, used in crimping process only. Clean oat or wheat straw well seasoned before bailing, free from mature seed-bearing stalks or roots of prohibited or noxious weeds. Hay or marsh hay will not be acceptable. Asphalt Emulsion Adhesives shall not be acceptable. Loose straw and hay mulch will not be allowed.
  - b. Hydromulch:
    - i. Wood Cellulose Fiber Mulch: Degradable green dyed wood cellulose fiber or 100% recycled long fiber pulp, free from weeds or other foreign matter toxic to seed germination and suitable to hydromulching.
    - ii. Paper Mulch: Degradable paper mulch, free of foreign debris. Do not use on slopes over 30%.
    - iii. Tackifier: Liquid concentrate diluted with water forming a transparent 3-dimensional film like crust permeable to water and air and containing not agents toxic to seed germination.
- c. **Construction Methods.** Per Section 816 of the MDOT Standard Specifications for Construction. Clean all areas where overspray has occurred from hydro-seeding operations.
- d. **Measurement and Payment.** The completed work will be measured and paid for at the contract unit price for the following Contract Item (pay item).

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Topsoil Surface, Furn, LM	Cubic Yard (CYD)
Topsoil Surface, Place	Square Yard (SYD)
Seeding, Mixture ____	Square Yard (SYD)
Sodding	Square Yard (SYD)
Mulch	Square Yard (SYD)
Mulch Blanket	Square Yard (SYD)
Mulch Blanket, High Velocity	Square Yard (SYD)

- A. Topsoil Surface, Furn, LM. The Engineer will collect load tickets of delivered topsoil from an approved commercial supplier and pay for topsoil based on the volume of the tickets supplied. If the Engineer cannot confirm information on the ticket as being correct, the ticket is lost, or duplicate tickets are submitted, the Engineer may not pay for the material.
- B. Topsoil Surface, Place. The Engineer will measure Topsoil Surface in place for topsoil placed a minimum of 3" in depth. Additional payment will not be paid for placing topsoil with a depth greater than 3". No distinction will be made for topsoil which has been salvaged from the site and topsoil furnished from a commercial supplier.
- C. Seeding, Mixture \_\_\_\_ . The Engineer will measure Seeding Mixture of the type required, in place. The cost for seeding includes furnishing and spreading the seed and any and all fertilizer, water and weed control necessary for the required finished product.

- D. Sodding. The Engineer will measure sod in place.
- E. Mulch. The Engineer will measure the Mulch in place. The cost for mulch includes providing, spreading, and placing. No distinction will be made between mulch and hydromulch.
- F. Mulch Blanket; Mulch Blanket, High Velocity. The Engineer will measure the Mulch Blanket or High Velocity Mulch Blanket in place. The cost for mulch blankets include providing, placing and anchoring the blankets. If the Contractor substitutes High Velocity Mulch Blankets for Mulch Blankets, the Authority will pay for the substitution as Mulch Blanket.

The Contract Unit price for turf establishment items includes all cost to furnish, install, and ensure proper establishment, including watering and re-seeding as required. Compost, fertilizer, chemical nutrients, watering, and weed control are incidental to the items of work.

**SPECIAL PROVISION  
FOR  
CONTRACTOR STAKING**

- a. Description.** This work consists of providing all equipment and labor provide, place, protect, and maintain staking for all points needed to complete the Contractors work. Work shall be completed according to the MDOT Standard Specifications for Construction (Section 104.09 and 824) and the Contract working drawings. There will be no Engineer Staking. All staking shall be provided by the Contractor.
  
- b. Materials.** All work shall be completed with Contractor Equipment to the minimum tolerances.
  - 1. Contractor shall provide the following information for Engineer approval: Project Team – If more than one person: Name; Project Roles and Responsibilities; Experience, Certifications, Qualifications; Additional background information that makes them qualified to be part of this project.
  - 2. Owner will provide Contractor with Civil3D2023 Project Drawing.
  
- c. Construction Methods.** Construction shall conform to Section 824 of the MDOT Standard Specifications for Construction and related sections. The Contractor shall perform constructing staking in accordance with 824 including but not limited to layout, baselines, grades, building corners and other necessary components, foundations, utilities, alignments, trees, landscaping, turf restoration and pavements and other project components as shown on the Contract working drawings.
  
- d. Measurement and Payment.** The completed work will be measured as a lump sum and will be paid for at the contract price for the following Contract Items (pay items):

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Contractor Staking	Lump Sum (LS)

Construction Staking shall include all materials, labor and equipment necessary to perform the completed work herein as described.

**SPECIAL PROVISION  
FOR  
AUDIO VIDEO FILE, SPECIAL**

- a. Description.** The work shall include a color **Audio-Video File, Special** of all areas proposed for improvement.
- b. Material.** The audio video recording shall be color and of such quality to accurately describe the existing conditions.
- c. Construction.** The video file shall be produced one (1) week prior to the placement of materials or equipment in the construction area. The tape shall be of commercial quality and can be submitted via thumb drive or electronically as agreed upon by the Engineer.

The entire project area must be recorded with the rate of speed less than 48 feet per minute. Camera functions such as panning rate and zoom-in/zoom-out shall be controlled to provide optimum object clarity.

The video must be recorded while the visibility is clear and at no time will it be allowed during periods of ground cover.

The video shall be continuous running and shall include date, time, and location at appropriate intervals. The location shall be easily referenced to the Contract Drawings.

- d. Measurement and Payment.** The completed work, as described, will be measured as a lump sum and paid for at the contract price using the follow pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Audio Video File, Special	Lump Sum

**SUPPLEMENTAL SPECIFICATION  
FOR  
SEGMENTAL CONCRETE RETAINING WALL  
(Keystone Compac III Unit or Approved Equal)**

**Part 1: GENERAL**

**1.01 Description**

- A. Work shall consist of designing, furnishing and construction of a segmental retaining wall system in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
- B. Work includes preparing foundation soil, furnishing, and installing leveling pad, unit facing system, unit drainage fill and reinforced backfill to the lines and grades shown on the construction drawings.
- C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the sealed, engineered shop drawings.

**1.02 Related Sections**

- A. Section 31 00 00 – Earthwork

**1.03 Reference Documents**

- A. American Association of State Highway and Transportation Officials (AASHTO)
  - 1. AASHTO M 252 Corrugated Polyethylene Drainage Pipe
  - 2. AASHTO M 288 Geotextile Specification for Highway Applications
- B. American Society for Testing and Materials (ASTM)
  - 1. ASTM C140 Sampling and Testing Concrete Masonry Units
  - 2. ASTM C1372 Specification for Dry-Cast Segmental Retaining Wall Units
  - 3. ASTM D442 Particle Size Analysis of Soils
  - 4. ASTM D698 Laboratory Compaction Characteristics of Soil – Standard Effort
  - 5. ASTM D1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method
  - 6. ASTM D1557 Laboratory Compaction Characteristics of Soil – Modified Effort
  - 7. ASTM D2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
  - 8. ASTM D2922 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
  - 9. ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer pipe and Fittings
  - 10. ASTM D4318 Liquid Limit, Plastic Limit and Plasticity Index of Soils
  - 11. ASTM D4475 Horizontal Shear Strength of Pultruded Reinforced Plastic Rods
  - 12. ASTM D4476 Flexural Properties of Fiber Reinforced Pultruded Plastic Rods
  - 13. ASTM D4595 Standard Test Method for Tensile Properties of Geotextiles by Wide-Width Strip Method

14. ASTM D4873 Standard Guide for Identification, Storage and Handling of Geosynthetics
15. ASTM D5262 Standard Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics
16. ASTM D5321 Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
17. ASTM D5818 Standard Practice for Obtaining Samples of Geosynthetics from a Test Section for Assessment of Installation Damage
18. ASTM D6637 Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Method
19. ASTM D6638 Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units
20. ASTM D6706 Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil
21. ASTM D6916 Standard Test Method for Determining the Shear Strength Between Segmental Concrete Units

C. National Concrete Masonry Association (NCMA)

1. NCMA SRWU-1 Test Method for Determining Connection Strength of SRW
2. NCMA SRWU-2 Test Method for Determining Shear Strength of SRW

**1.04 Definitions**

- A. Segmental Unit– a dry-stacked concrete retaining wall unit machine made from Portland cement, water, aggregates, manufactured by a licensed manufacturer of Keystone or approved equal.
- B. Structural Geogrid – a polymeric material formed by a regular network of connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock or earth and function primarily as reinforcement.
- C. Unit Drainage Fill – drainage aggregate that is placed within and immediately behind the Keystone concrete units or approved equal.
- D. Reinforced Backfill – compacted soil that is placed within the reinforced soil volume as outlined on the plans.
- E. Retained Soil – the soil mass behind the reinforced backfill.
- F. Foundation Soil – the soil mass below the leveling pad and reinforced backfill.
- G. Leveling Pad – crushed stone, sand and gravel or unreinforced concrete material placed to provide a level surface for placement of the Keystone concrete units or approved equal.
- H. Geosynthetic Reinforcement – polymeric material designed specifically for soil reinforcement.

**1.05 Submittals and Certification**

- A. Contractor shall submit a Manufacturer's certification, prior to the start of work, that the retaining wall system components meet the requirements of this specification and the structure design.
- B. Contractor shall submit construction drawings and design calculations for the retaining wall system prepared and stamped by a Professional Engineer registered in the state of Michigan.

**1.06 Quality Assurance**

- A. Contractor shall submit a list of five (5) previously constructed projects of similar size and magnitude by the wall installer where the segmental retaining wall system or approved equal has been constructed successfully. Contact names and phone numbers shall be listed for each project.
- B. Contractor shall provide evidence that the design engineer has a minimum of five years documented experience in the design of reinforced soil structures. The design engineer shall provide proof of current professional liability insurance with an aggregate coverage limit of not less than \$2,000,000.
- C. Owner shall/may provide quality assurance inspection and testing during earthwork and wall construction operations. Contractor shall provide all quality control testing and inspection not provided by the owner. Owner's quality assurance program does not relieve the contractor of responsibility for quality control and wall performance.

**1.07 Delivery Handling and Storage**

- A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.
- B. Contractor shall protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

**PART 2: PRODUCTS**

**2.01 Segmental Concrete Retaining Wall Units**

- A. Segmental retaining wall units or approved equal shall conform to the following architectural requirements
  - 1. Face color - concrete gray, unless otherwise specified. The Owner may specify standard manufacturers' color.
  - 2. Tri-plane or Straight Face finish - hard split in angular tri-plane or straight face configuration. Other face finishes will not be allowed without written approval of Owner.
  - 3. Bond configuration - running with bonds nominally located at midpoint in vertically adjacent units.
  - 4. Exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from 20 feet (6 m) under diffused lighting.
- B. Segmental concrete units shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.

- C. Segmental concrete units shall conform to the following structural and geometric requirements measured in accordance with ASTM C140 Sampling and Testing Concrete Masonry Units:
  - 1. Compressive strength:  $\geq 3000$  psi (21 MPa).
  - 2. Absorption:  $\leq 8\%$  for standard weight aggregates.
  - 3. Dimensional tolerances:  $\pm 1/8$ " (3 mm) from nominal unit dimensions not including rough split face.
  - 4. Unit Size: 8" (203 mm) (H) x 18" (457 mm) (W) x 12" (304 mm) (D) minimum.
- D. Segmental concrete units or approved equal shall conform to the following constructability requirements:
  - 1. Vertical setback:  $1/8$  inch (3 mm)  $\pm$  per course (near vertical) or  $1 1/8$  inch (28 mm) + per course, per the design.
  - 2. Alignment and grid attachment mechanism - fiberglass pins, two per unit.
  - 3. Maximum horizontal gap between erected units shall be  $\leq 1/2$  inch (13 mm).

**2.02 Shear and Reinforcement Pin Connectors**

- A. Shear and reinforcement pin connectors shall be 1/2-inch (12 mm) diameter thermoset isophthalic polyester resin pultruded fiberglass reinforcement rods to provide connection between vertically and horizontally adjacent units and geosynthetic reinforcement, with the following requirements:
  - 1. Flexural Strength in accordance with ASTM D4476: 128,000 psi (882 MPa) minimum.
  - 2. Short Beam Shear in accordance with ASTM D4475: 6,400 psi (44 MPa) minimum.
- B. Shear and reinforcement pin connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

**2.03 Base Leveling Pad Material**

- A. Material shall consist of a compacted crushed stone base, sand and gravel or unreinforced concrete, as shown on the engineered shop drawings.

**2.04 Unit Drainage Fill**

- A. Unit drainage fill shall consist of clean 1 inch (25 mm) minus crushed stone or crushed gravel meeting the following gradation tested in accordance with ASTM D-422:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch (25 mm)	100
3/4-inch (19mm)	75 – 100
No. 4 (4.75 mm)	0 – 10
No. 50 (300 um)	0 - 5

- B. Drainage fill shall be placed within the cores of, between, and behind the units as indicated on the design drawings. Not less than 1.3 cubic foot (0.036 m<sup>3</sup>) of drainage fill shall be used for each square foot (0.093 m<sup>2</sup>) of wall face unless otherwise specified.

**2.05 Reinforced Backfill**

- A. Reinforced backfill shall be free of debris and meet the following gradation tested in accordance with ASTM D-422:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 1/2 inch (38 mm)	100
3/4-inch (19 mm)	75 – 100
No. 40 (425 um)	0 – 60
No. 200 (75 um)	0 – 35

Plasticity Index (PI) < 15 and Liquid Limit < 40, per ASTM D4318

- B. The maximum aggregate size shall be limited to 3/4 inch (19 mm) unless installation damage tests have been performed to evaluate potential strength reductions to the geogrid design due to increased installation damage during construction.
- C. Material can be site-excavated soils where the above requirements can be met. Soils not meeting the above criteria, including highly plastic clays and organic soils, shall not be used in the backfill or reinforced backfill soil mass.
- D. Contractor shall submit reinforced fill sample and laboratory test results to the Architect/Engineer for approval, prior to the use of any proposed reinforced backfill material.

**2.06 Geogrid Soil Reinforcement**

- A. Geosynthetic reinforcement shall consist of geogrids manufactured for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn or high-density polyethylene. Polyester geogrid shall be made from high tenacity polyester filament yarn with a molecular weight exceeded 25,000 g/m and with a carboxyl end group value less than 30. Polyester geogrid shall be coated with an impregnated PVC coating that resists peeling, cracking, and stripping.
- B. Ta – Long Term Allowable Tensile Design Load. Ta of the geogrid material shall be determined as follows:  $Ta = Tult / (RFcr * RFd * RFid * FS)$ . Ta shall be evaluated based on a 75-year design life.
  - 1. Tult – Short Term Ultimate Tensile Strength. Tult shall be determined in accordance with ASTM D4595 or ASTM D6637. Tult is based on the minimum average roll values (MARV).
  - 2. RFcr – Reduction Factor for Long Term Tension Creep. RFcr shall be determined from 10,000-hour creep testing performed in accordance with ASTM D5262. RFcr = 1.45 minimum.

3. RFd – Reduction Factor for Durability. RFd shall be determined from polymer specific durability testing covering the range of expected soil environments. RFd = 1.10 minimum.
  4. RFid – Reduction Factor for Installation Damage. RFid shall be determined from product specific construction damage testing performed in accordance with ASTM D5818. Test results shall be provided for each product to be used with project specific or more severe soil types. RFid = 1.05 minimum.
  5. FS – Overall Design Factor of Safety. FS shall be 1.5 unless noted for the maximum allowable working stress calculation.
- C. The maximum design tensile load of the geogrid shall not exceed the laboratory tested ultimate strength of the geogrid/facing unit connection divided by a factor of safety of 1.5. The connection strength testing and computation procedures shall be in accordance with ASTM D6638 Connection Strength between Geosynthetic Reinforcement and Segmental Concrete Units or NCMA SRWU-1.
- D. Ci – Coefficient of Soil Interaction. Ci values shall be determined per ASTM D6706 at a maximum 0.75-inch (19 mm) displacement.
- E. The geogrid manufacturer shall have a Manufacturing Quality Control program that includes QC testing by an independent laboratory. The QC testing shall include Tensile Strength testing, Melt Flow Index testing for HDPE geogrids and Molecular Weight testing for polyester geogrids.

## **2.07 Drainage Pipe**

- A. If required, drainage pipe shall be perforated or slotted PVC pipe manufactured in accordance with ASTM D3034 or corrugated HDPE pipe manufactured in accordance with AASHTO M252.

## **2.08 Geotextile Filter Fabric**

- A. When required, geotextile filter fabric shall be a needle-punched nonwoven fabric that meets the requirements of AASHTO M288.

# **PART 3: EXECUTION**

## **3.01 Excavation**

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. The Owner or Contractors QA/QC representative shall inspect the excavation and test the foundation soils and approve prior to placement of the leveling pad material or fill soils. Any over-excavation required to remove unsuitable soils shall be oversized from the front of the leveling pad and back of the geogrid reinforcement.

- B. Over-excavation and replacement of unsuitable soils and replacement with approved compacted fill will be compensated as approved by the Engineer/Owner.

### **3.02 Base Leveling Pad**

- A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings to a minimum thickness of 6 inches (150 mm) and extend laterally a minimum of 6 inches in front and behind the Keystone wall unit.
- B. Soil leveling pad materials shall be compacted to a minimum of 95% of Standard Proctor density per ASTM D697 or 92% Modified Proctor density per ASTM D1557.
- C. Leveling pad shall be prepared to insure full contact with the base surface of the concrete units.

### **3.03 Segmental Unit Installation**

- A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and ensure that all units are in full contact with the base and properly seated.
- B. Place the front of units' side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
- C. Install shear/connecting pins per manufacturer's recommendations.
- D. Place and compact drainage fill within and behind wall units. Place and compact reinforced backfill soil behind drainage fill.
- E. Maximum stacked vertical height of wall units, prior to drainage fill and backfill placement and compaction, shall not exceed three courses.

### **3.04 Structural Geogrid Installation**

- A. Geogrid shall be installed with the highest strength direction perpendicular to the wall alignment.
- B. Geogrid reinforcement shall be placed at the strengths, lengths and elevations shown on the construction drawings, or as directed by the engineer.
- C. The geogrid shall be laid horizontally on compacted backfill and attached to the Keystone wall unit pins and within 1 inch of the face of the units. Place the next course of Keystone units over the geogrid. The geogrid shall be pulled taut and anchored prior to backfill placement on the geogrid.
- D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter

pieces of geogrid or gaps greater than 2 inches between adjacent pieces of geogrid are not permitted.

### **3.05 Reinforced Backfill Placement**

- A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage to the geogrid.
- B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches (150 mm) where hand operated compaction equipment is used, or 8 – 10 inches (200 to 250 mm) where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density, as needed.
- C. Reinforced backfill shall be compacted to a minimum of 95% of Standard Proctor density per ASTM D697 or 92% Modified Proctor density per ASTM D1557. The moisture content of the reinforced backfill material during compaction shall be uniformly distributed throughout each layer and shall be dry of optimum by 0 to 3 percentage points of moisture.
- D. Only hand operated compaction equipment shall be allowed within 3 feet (1 M) from the back of the segmental concrete units.
- E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches (150 mm) is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging or displacing the segmental concrete units or geogrid.
- F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and turning shall be avoided.
- G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from the wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

### **3.06 Cap Installation**

- A. Prior to placement of the cap units, the upper surface of the top course of wall units shall be cleaned of soil and any other material.
- B. Cap units shall be adequately glued to the underlying wall units with an all-weather exterior construction adhesive.

### **3.07 As-built Construction Tolerances**

- A. Vertical alignment:  $\pm 1.5$  inches (40 mm) over any 10-foot (3 m) distance.

- B. Wall batter: within 2 degrees of design batter. Overall wall batter shall be  $\geq 0$  degrees.
- C. Horizontal alignment:  $\pm 1.5$  inches (40 mm) over any 10-foot (3 m) distance.
- D. Corners and curves:  $\pm 1$  foot (300 mm) to theoretical location.
- E. Maximum horizontal gap between erected units shall be  $\leq 1/2$  inch (13 mm).

**3.08 Field Quality Control**

- A. Quality Assurance – The owner shall/may engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction. This does not relieve the Contractor from securing the necessary construction quality control testing.
- B. Quality assurance should include foundation soil inspection and testing and verification of the geotechnical design parameters and verification that the contractor’s quality control testing is adequate as a minimum. Quality assurance shall also include observation of the construction for general compliance with the design drawings and project specifications. Quality assurance is usually best performed by the site geotechnical engineer.
- C. Quality Control – The Contractor shall engage independent inspection and testing services to perform the minimum quality control testing described in the retaining wall design plans and specifications. Only qualified and experienced technicians and engineers shall perform quality control testing and inspection services.
- D. Quality control testing shall include soil and backfill testing to verify soil types and strengths, compaction and moisture conditions and verification that the retaining wall is being constructed in accordance with the design plans and specifications.

**PART 4: MEASUREMENT AND PAYMENT**

The unit of measurement for furnishing the segmental concrete unit retaining wall system shall be the vertical area of the wall face surface as measured from the top of the leveling pad to the top of the wall. The final measured quantity shall include the design, and supply of all material components, equipment and the installation of the precast modular block retaining wall system. Payment shall be made per square foot of vertical wall face above finish grade.

The completed work will be measured as square foot and will be paid for at the contract price for the following contract item (pay item):

<b>Contract Pay Item</b>	<b>Pay Unit</b>
Retaining Wall	SFT

## SUPPLEMENTAL SPECIFICATIONS

**Note:** The following articles form an integral part of these bidding/contract documents. The Bidder/Contractor shall be responsible for inclusion of all detailed information described herein when deriving unit prices/contract price.

The Michigan Department of Transportation Specifications for Construction (2012) shall be referenced for work not detailed or absent in the supplemental specification.

**SUPPLEMENTAL SPECIFICATION  
FOR**

**SAFETY RAILING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

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

**1.02 SUMMARY**

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

**1.03 ACTION SUBMITTALS**

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

**1.04 FIELD CONDITIONS**

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

**1.05 WARRANTY**

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

## PART 2 - PRODUCTS

### 2.01 PERFORMANCE REQUIREMENTS

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

### 2.02 SAFETY RAILING FRAMEWORK

- A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 based on the following:
  - 1. Fence Height: 42" max.
    - a. Posts: 4" x 4" posts spaced 6' o.c.
  - 2. Horizontal Framework Members: 2 x 8" handrail (1), and 2 x 6" rail (5) per 6' section. Bottom rail is to be 3.5" higher than grade, remaining rails are to have a max. 3.5" space between.
    - a. Natural wood finish.
  - 3. All wood shall be kiln dried, pressure treated southern yellow pine. Posts into ground shall be NO. 2 grade 0.6 PCF, rails shall be NO. 1 Grade 0.25 PCF.
- B. Hardware: Handrail shall be attached with stainless steel screws. 2x8 rails and 2 x6 rails shall be attached with ½" Carriage bolts, galvanized.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

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

### 3.02 PREPARATION

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

### 3.03 SAFETY RAILING INSTALLATION

- A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

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

3.04 Measurement and Payment. The completed work will be measured as linear foot and will be paid for at the contract price for the following Contract Item (pay item):

Contract Pay Item	Pay Unit
Safety Fence	LFT

END OF SECTION

**SUPPLEMENTAL SPECIFICATION  
FOR**

**WAYNE COUNTY PERMITS  
(SOIL EROSION AND C PERMITS)**

**Part 1: GENERAL**

**1.01 DESCRIPTION**

- A. The dollar amount presented in the bid form is a place holder only. This pay item consists of the contractor obtaining the Wayne County permits associated with this project, two c-permits and a soil erosion control permit. The projects IBT Section J and K were reviewed separately and therefore have two c-permits. However, they were submitted as a single project for the soil erosion control permit. This pay item does not include any bonding for the projects which is incidental to the project.

**PART 2: MEASUREMENT AND PAYMENT**

The unit of measurement for furnishing the required permits shall be the actual dollars paid for the permit less any bonding requirements for the permit.

Copies of the permit are to be supplied to the inspector and engineer prior to any work performed. These permits will be proof of payment.

The completed work will be measured as dollar amount and will be paid for at the contract price for the following contract item (pay item):

<b>Contract Pay Item</b>	<b>Pay Unit</b>
Wayne County Permits	DOL