

CONSTRUCTION REQUEST FOR PROPOSAL

RFP# 22-49

Ellsworth Road Sidewalk Gap Elimination

City of Ann Arbor
Public Services / Engineering Unit



Due Date: July 19, 2022 by 10:00 a.m. (local time)

Issued By:

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

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SECTION I - GENERAL INFORMATION

A. OBJECTIVE

The purpose of this Request for Proposal is to select a contractor to provide construction of new sidewalk and associated work as described in the plans and specifications.

B. QUESTIONS AND CLARIFICATIONS / DESIGNATED CITY CONTACTS

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before July 7, 2022 at 5:00 p.m. (local time), and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to Theresa Bridges, Project Manager – tbridges@a2gov.org

RFP Process and Compliance questions shall be e-mailed to Colin Spencer, Buyer - CSpencer@a2gov.org

Should any prospective bidder be in doubt as to the true meaning of any portion of this RFP, or should the prospective bidder find any ambiguity, inconsistency, or omission therein, the prospective bidder shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the prospective bidder's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP, and must be incorporated in the proposal where applicable.

C. PRE-PROPOSAL MEETING

No pre-proposal meeting will be held for this RFP. Please contact staff indicated above with general questions regarding the RFP.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective bidder. An official authorized to bind the bidder to its provisions must sign

the proposal. Each proposal must remain valid for at least one hundred and twenty (120) days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the bidder's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. A selection committee comprised primarily of staff from the City will complete the evaluation.

If interviews are desired by the City, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected bidder to this project.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the proposal response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before July 19, 2022 by 10:00a.m. (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent should submit in a sealed envelope

- **one (1) original proposal**
- **one (1) additional proposal copy**
- **one (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format**

Proposals submitted should be clearly marked: **“RFP No. 22-49 – Ellsworth Sidewalk Gap Elimination”** and list the bidder's name and address.

Proposals must be addressed and delivered to:
City of Ann Arbor
c/o Customer Service
301 East Huron Street
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered proposals may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule/entrance of City Hall which is accessible to the public at all hours. The City will not be liable to any prospective bidder for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal.

Bidders are responsible for submission of their proposal. Additional time will not be granted to a single prospective bidder. However, additional time may be granted to all prospective bidders at the discretion of the City.

A proposal may be disqualified if the following required forms are not included with the proposal:

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

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

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

H. TYPE OF CONTRACT

A sample of the Construction Agreement is included as Attachment A. Those who wish to submit a proposal to the City are required to review this sample agreement carefully. **The City will not entertain changes to its Construction Agreement.**

For all construction work, the respondent must further adhere to the City of Ann Arbor General Conditions. The General Conditions are included herein. Retainage will be held as necessary based on individual tasks and not on the total contract value. The Contractor shall provide the required bonds included in the Contract Documents for the duration of the Contract.

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected bidder's response thereto, shall constitute the basis of the scope of services in the contract by reference.

I. NONDISCRIMINATION

All bidders proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Attachment G shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

J. WAGE REQUIREMENTS

The Attachments provided herein outline the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. Use of Michigan Department of Transportation Prevailing Wage Forms (sample attached hereto) or a City-approved equivalent will be required along with wage rate interviews.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. **The wage determination(s) current on the date 10 days before proposals are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: www.wdol.gov.

For the purposes of this RFP the Construction Type of Highway will apply.

K. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected bidder unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on

applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

L. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the bidder prior to the execution of an Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, bidder agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

M. DEBARMENT

Submission of a proposal in response to this RFP is certification that the Respondent is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

N. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If any bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Manager. The Purchasing Manager will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the bidder to initiate contact with anyone other than the Designated City Contacts provided herein that the bidder believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

O. SCHEDULE

The following is the schedule for this RFP process.

Activity/Event	Anticipated Date
Written Question Deadline	July 7, 2022 5:00 p.m. (Local Time)
Addenda Published	July 11, 2022
Proposal Due Date	July 19, 2022, 10:00 a.m. (Local Time)

The above schedule is for information purposes only and is subject to change at the City's discretion.

P. IRS FORM W-9

The selected bidder will be required to provide the City of Ann Arbor an IRS form W-9.

Q. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all bidders.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more contractors or service providers to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within the RFP.

R. IDLEFREE ORDINANCE

The City of Ann Arbor adopted an idling reduction Ordinance that went into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: www.a2gov.org/idlefree.

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

(1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

S. ENVIRONMENTAL COMMITMENT

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote, and encourage the City's commitment to the environment.

The City encourages potential vendors to bring forward emerging and progressive products and services that are best suited to the City's environmental principles.

T. BID SECURITY

Each bid must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

U. MAJOR SUBCONTRACTORS

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the City.

V. LIQUIDATED DAMAGES

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

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

SECTION II - SCOPE OF WORK

Please see the plan set and Project Specifications for more details.

SECTION III - MINIMUM INFORMATION REQUIRED

PROPOSAL FORMAT

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

Bidders should organize Proposals into the following Sections:

- A. Qualifications, Experience and Accountability
- B. Workplace Safety
- C. Workforce Development
- D. Social Equity and Sustainability
- E. Schedule of Pricing/Cost
- F. Authorized Negotiator
- G. Attachments

Bidders are strongly encouraged to provide details for all of the information requested below within initial proposals. Backup documentation may be requested at the sole discretion of the City to validate all of the responses provided herein by bidders. False statements by bidders to any of the criteria provided herein will result in the proposal being considered non-responsive and will not be considered for award.

Pursuant to Sec 1:314(9) of the City Code which sets forth requirements for evaluating construction bids, Bidders should submit the following:

A. Qualifications, Experience and Accountability - 20 Points

1. Qualifications and experience of the bidder and of key persons, management, and supervisory personnel to be assigned by the bidder.
2. References from individuals or entities the bidder has worked for within the last five (5) years including information regarding records of performance and job site cooperation.
3. Evidence of any quality assurance program used by the bidder and the results of any such program on the bidder's previous projects.

4. A statement from the bidder as to any major subcontractors it expects to engage including the name, work, and amount.

B. Workplace Safety – 20 Points

1. Documentation of an on-going, Michigan OSHA-approved safety-training program for employees to be used on the proposed job site.
2. Evidence of the bidder's worker's compensation Experience Modification Rating ("EMR"). Preference within this criterion will be given to an EMR of 1.0 or less based on a three-year average.
3. Evidence that all craft labor that will be employed by the bidder for the project has, or will have prior to project commencement, completed at least the OSHA 10-hour training course for safety established by the U.S. Department of Labor, Occupational Safety & Health Administration.
4. The safety record of bidder and major subcontractors, including OSHA, MIOSHA, or other safety violations.

C. Workforce Development – 20 Points

1. The ratio of masters or journeypersons to apprentices proposed to be used on the construction project job site, if apprentices are to be used on the project.
2. Documentation as to bidder's pay rates, health insurance, pension or other retirement benefits, paid leave, or other fringe benefits to its employees.
3. Documentation that the bidder participates in a Registered Apprenticeship Program that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the USDOL Office of Apprenticeship.

D. Social Equity and Sustainability – 20 Points

1. A statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan. The City will consider in evaluating which bids best serve its interests, the extent to which responsible and qualified bidders are able to achieve this goal.

2. Evidence of Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses.
3. Evidence that the bidder is an equal opportunity employer and does not discriminate on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation, gender identity or expression, height, weight, or disability.
4. The bidder's proposed use of sustainable products, technologies, or practices for the project, which reduce the impact on human health and the environment, including raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and waste management.
5. The bidder's environmental record, including findings of violations and penalties imposed by government agencies.

E. Schedule of Pricing/Cost - 20 Points

Company _____

Unit Price Bid

<u>Pay Item Code</u>	<u>Pay Item Description</u>	<u>Units</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
101	General Conditions, Max \$85,000	LS	1	\$	\$
102	Digital Audio Visual Coverage	LS	1	\$	\$
103	Project Supervision, Max. \$20,000	LS	1	\$	\$
104	Certified Payroll	LS	1	\$	\$
105	Minor Traffic Devices, Max \$50,000	LS	1	\$	\$
130	Tree Protection Fence	Ft	350	\$	\$
150	Structure, Rem Portion (Wingwall)	Ea	1	\$	\$
151	Culv, Other than Pipe, Rem	Ea	1	\$	\$
155	Culv, End, Rem, 12 to 18 inch	Ea	1	\$	\$
156	Culv, End, Rem, 36 inch	Ea	1	\$	\$
170	Remove HMA Pavement	Sft	575	\$	\$
171	Remove Concrete Curb and Gutter - Any Type	Ft	75	\$	\$
172	Remove Concrete Sidewalk or Drive - Any Thickness	Sft	1020	\$	\$
280	Backfill, Structure, CIP	Cyd	25	\$	\$
281	Substructure Conc	Cyd	25	\$	\$
282	Reinforcement, Steel	Lb	5000	\$	\$
310	Culv End Sect, Metal, 15 inch	Ea	1	\$	\$
311	Culv End Sect, Conc, 36 inch	Ea	1	\$	\$
312	Culv End Sect, Elliptical 24 inch by 38 inch	Ea	2	\$	\$
320	Culv, Cl.A, Metal, 15 inch	Ft	5	\$	\$
321	Culv, Cl A, Conc, 36 inch	Ft	8	\$	\$
322	Culv, Reinf Conc, Ellip, HE Cl A, 24 inch by 38 inch	Ft	40	\$	\$
323	Culv, Reinf Conc, Ellip, HE Cl A, 43 inch by 68 inch	Ft	16	\$	\$
510	Sidewalk Station Grading	Sta	38.02	\$	\$
511	Sidewalk Station Grading, Railroad ROW	Sta	1.01	\$	\$
520	Subgrade Undercutting, Type II	Sft	1000	\$	\$
521	Sand Subbase Course, Class II - CIP	Cyd	450	\$	\$

TOTAL THIS PAGE (Page 13)

\$ _____

(Also must be entered on Page 14)

<u>Pay Item Code</u>	<u>Pay Item Description</u>	<u>Units</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
522	21AA Limestone - CIP	Cyd	10	\$	\$
525	Maintenance Gravel	Ton	2	\$	\$
530	Handpatching	Ton	10	\$	\$
540	4 inch Sidewalk or Ramp	Sft	19000	\$	\$
541	6 inch Drive Approach, Ramp, or Sidewalk	Sft	89	\$	\$
542	6 inch Drive Approach, Ramp, or Sidewalk-High Early	Sft	89	\$	\$
543	8 inch Drive Approach, Ramp, or Sidewalk	Sft	318	\$	\$
544	8 inch Drive Approach, Ramp, or Sidewalk-High Early	Sft	318	\$	\$
560	Curb and Gutter, Conc, AA Det SD-R-1, Modified	Ft	50	\$	\$
561	Curb Ramp Opening, Conc	Ft	30	\$	\$
570	Detectable Warning, Cast In Place	Sft	30	\$	\$
580	Adjust Structure	Ea	2	\$	\$
581	Adjust Curb Box	Ea	1	\$	\$
701	Erosion Control, Silt Fence	Ft	450	\$	\$
702	Erosion Control, Inlet Protection	Ea	2	\$	\$
705	Riprap, Plain	Syd	200	\$	\$
800	Restoration	Syd	2065	\$	\$
810	Irrigation Systems, Protect and Maintain	LS	1	\$	\$
825	Fence, Split Rail	Ft	100	\$	\$
850	Clean-Up & Restoration, Special, Max \$14,000	LS	1	\$	\$

TOTAL THIS PAGE (Page 14)

\$ _____

TOTAL FROM PAGE 13

\$ _____

TOTAL BID

\$ _____

F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

The 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 bidder wishes to quote alternate items for consideration by the City, 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.

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate its proposed time for performance of the work.

Consideration for any proposed alternative items or time may be negotiated at the discretion of the City.

G. ATTACHMENTS

General Declaration, Legal Status of Bidder, Conflict of Interest Form, Living Wage Compliance Form, Prevailing Wage Compliance Form and the Non-Discrimination Form should be completed and returned with the proposal. These elements should be included as attachments to the proposal submission.

PROPOSAL EVALUATION

1. The selection committee will evaluate each proposal by the above-described criteria and point system. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for an interview if interviews are selected to be held by the City. The committee may contact references to verify material submitted by the bidder.
2. The committee then will schedule interviews with the selected firms if necessary. The selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan (if applicable) and pricing.
3. The interview should include the project team members expected to work on the project, but no more than six members total. The interview shall consist of a presentation of up to thirty minutes (or the length provided by the committee) by the

bidder, including the person who will be the project manager on this contract, followed by approximately thirty minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The committee may record the oral interviews.

4. The firms interviewed will then be re-evaluated by the above criteria and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Council, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the bidder based on their proposal and pricing schedules alone.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

Any proposal that does not conform fully to these instructions may be rejected.

PREPARATION OF PROPOSALS

Proposals should have no plastic bindings but will not be rejected as non-responsive for being bound. Staples or binder clips are acceptable. Proposals should be printed double sided on recycled paper.

Each person signing the proposal certifies that they are a person in the bidder's firm/organization responsible for the decisions regarding the fees being offered in the Proposal and has not and will not participate in any action contrary to the terms of this provision.

ADDENDA

If it becomes necessary to revise any part of the RFP, notice of the addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or the City of Ann Arbor web site www.A2gov.org for all parties to download.

Each bidder should acknowledge in its proposal all addenda it has received on the General Declarations form provided in the Attachments section herein. The failure of a bidder to receive or acknowledge receipt of any addenda shall not relieve the bidder of the responsibility for complying with the terms thereof. The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

SECTION IV - ATTACHMENTS

Attachment A	Sample Standard Contract	C-1 – C-4
	Sample Bonds.....	B-1 – B-2
	Contract General Conditions	GC1 - GC18

Attachment B – General Declarations

Attachment C - Legal Status of Bidder

Attachment D – Prevailing Wage Declaration of Compliance Form

Attachment E – Living Wage Declaration of Compliance Form

Attachment F – Living Wage Ordinance Poster

Attachment G – Vendor Conflict of Interest Disclosure Form

Attachment H – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment I – Non-Discrimination Ordinance Poster

Sample Certified Payroll Report Template

**ATTACHMENT A
SAMPLE STANDARD CONTRACT**

If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors of service to the City of Ann Arbor such as the following:

Administrative Use Only
Contract Date: _____

CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and _____ ("Contractor")

(An individual/partnership/corporation, include state of incorporation) (Address)

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

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **[Insert Title of Bid and Bid Number]** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

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

ARTICLE II - Definitions

Administering Service Area/Unit means **[Insert Name of Administering Service Unit]**

Project means **[Insert Title of Bid and Bid Number]**

Supervising Professional means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed,

the Supervising Professional is: **[Insert the person's name]** whose job title is **[Insert job title]**. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means _____ **[Insert name]** whose job title is **[Insert job title]**.

ARTICLE III - Time of Completion

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

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

ARTICLE IV - The Contract Sum

Choose one only.

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

_____ Dollars (\$_____)

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

ARTICLE V - Assignment

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

ARTICLE VI - Choice of Law

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

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

ARTICLE VII - Relationship of the Parties

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

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

ARTICLE VIII - Notice

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

ARTICLE IX - Indemnification

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

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties

to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

ARTICLE XI – Electronic Transactions

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

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
City Administrator

By _____
Services Area Administrator

Approved as to form and content

Atleen Kaur, City Attorney

PERFORMANCE BOND

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

SIGNED AND SEALED this _____ day of _____, 202_.

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Atleen Kaur, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

LABOR AND MATERIAL BOND

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

SIGNED AND SEALED this _____ day of _____, 202_

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Atleen Kaur, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

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

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

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

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

Section 2 - Order of Completion

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

Section 3 - Familiarity with Work

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

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

Section 4 - Wage Requirements

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

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

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

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

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

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

Section 5 - Non-Discrimination

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

Section 6 - Materials, Appliances, Employees

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

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

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

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

Section 8 - Royalties and Patents

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

Section 9 - Permits and Regulations

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

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

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

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

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

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

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

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

Section 11 - Inspection of Work

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

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

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

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

Section 12 - Superintendence

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

Section 13 - Changes in the Work

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

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

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

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

Section 14 - Extension of Time

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

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

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

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

Section 15 - Claims for Extra Cost

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

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

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

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

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

Section 16 - Progress Payments

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

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

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

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

Section 17 - Deductions for Uncorrected Work

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

Section 18 - Correction of Work Before Final Payment

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

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

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

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

Section 19 - Acceptance and Final Payment

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

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

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

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

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

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

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

Section 20 - Suspension of Work

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

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

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

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

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

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

Section 22 - Contractor's Right to Terminate Contract

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

Section 23 - City's Right To Do Work

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

Section 24 - Removal of Equipment and Supplies

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

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

Section 25 - Responsibility for Work and Warranties

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

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

Section 26 - Partial Completion and Acceptance

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

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

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

Section 27 - Payments Withheld Prior to Final Acceptance of Work

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

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

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

Section 28 - Contractor's Insurance

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

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

Required insurance policies include:

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

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

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

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

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

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

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

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

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

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

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

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

Section 30 - Damage Claims

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

Section 31 - Refusal to Obey Instructions

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

Section 32 - Assignment

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

Section 33 - Rights of Various Interests

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

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

Section 34 - Subcontracts

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

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

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

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

Section 35 - Supervising Professional's Status

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

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

Section 36 - Supervising Professional's Decisions

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

Section 37 - Storing Materials and Supplies

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

Section 38 - Lands for Work

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

Section 39 - Cleaning Up

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

Section 40 - Salvage

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

Section 41 - Night, Saturday or Sunday Work

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

Section 42 - Sales Taxes

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

Section 43

CONTRACTOR'S DECLARATION

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

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

Contractor

Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

Section 44

CONTRACTOR'S AFFIDAVIT

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

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

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

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

Contractor Date

By _____
(Signature)

Its _____
(Title of Office)

Subscribed and sworn to before me, on this _____ day of _____, 20__
_____, _____ County, Michigan

Notary Public

_____ County, MI

My commission expires on:

ATTACHMENT B
GENERAL DECLARATIONS

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, General Information, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered _____, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS _____ DAY OF _____, 202_.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

ATTACHMENT C
LEGAL STATUS OF BIDDER

(The bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of _____, for whom _____, bearing the office title of _____, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

* An individual, whose signature with address, is affixed to this Bid: _____ (initial here)

Authorized Official

_____ **Date** _____, 202__

(Print) Name _____ Title _____

Company:

Address:

Contact Phone () _____ Fax () _____

Email _____

ATTACHMENT E

LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here No. of employees _____

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$14.82/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$16.52/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Company Name

Street Address

Signature of Authorized Representative

Date

City, State, Zip

Print Name and Title

Phone/Email address

Attachment F

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2022 - ENDING APRIL 29, 2023

\$14.82 per hour

If the employer provides health care benefits*

\$16.52 per hour

If the employer does **NOT** provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint contact
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**



ATTACHEMENT G

Vendor Conflict of Interest Disclosure Form
--

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor’s conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee’s immediate family member has an ownership interest in vendor’s company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor’s Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor’s company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Vendor Name	Vendor Phone Number	
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

ATTACHMENT H

DECLARATION OF COMPLIANCE

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

Company Name

Signature of Authorized Representative

Date

Print Name and Title

Address, City, State, Zip

Phone/Email Address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

ATTACHMENT I

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

MICHIGAN DEPARTMENT OF TRANSPORTATION CERTIFIED PAYROLL

COMPLETION OF CERTIFIED PAYROLL FORM FULFILLS THE MINIMUM MDOT PREVAILING WAGE REQUIREMENTS

(1) NAME OF CONTRACTOR / SUBCONTRACTOR (CIRCLE ONE)										(2) ADDRESS												
(3) PAYROLL NO.			(4) FOR WEEK ENDING			(5) PROJECT AND LOCATION				(6) CONTRACT ID												
(a) EMPLOYEE INFORMATION	(b) WORK CLASSIFICATION	(c) Hour Type	(d) DAY AND DATE							(e) TOTAL HOURS ON PROJECT	(f) PROJECT RATE OF PAY	(g) PROJECT RATE OF FRINGE PAY	(h) GROSS PROJECT EARNED		(i) TOTAL WEEKLY HOURS WORKED ALL JOBS	(j) DEDUCTIONS					(k) TOTAL WEEKLY WAGES PAID FOR ALL JOBS	
			MON	TUE	WED	THU	FRI	SAT	SUN				FICA	FEDERAL		STATE	OTHER	TOTAL DEDUCT				
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00
ETH/GEN: ID #:	GROUP/CLASS #:	S							0				\$0.00								\$0.00	\$0.00
NAME:									0				\$0.00								\$0.00	\$0.00

Date _____

I, _____ (Name of Signatory Party) _____ (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the _____ (Contractor or Subcontractor)
 _____; that during the payroll period commencing on the _____ (Building or Work)
 _____ day of _____, _____, and ending the _____ day of _____, _____,
 all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full _____ (Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION
REMARKS:	
NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	

SECTION V – PROJECT SPECIFICATIONS

STANDARD SPECIFICATIONS

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

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

DETAILED SPECIFICATIONS

	Project Schedule	DS-1
	Maintenance of Traffic	DS-3
	Coordination and Cooperation	DS-6
	Disposing of Excavated Material	DS-6
	Protection of Utilities	DS-7
	Vacuum Street and Utility Structure Cleaning Equipment	DS-7
	Materials and Supplies Certifications	DS-7
	Contract Documents	DS-8
	Working in the Rain	DS-8
	Working in the Dark	DS-9
	Quantities and Unit Prices	DS-9
	General Construction Notes	DS-9
	Property Markers, Monuments and Benchmarks	DS-10
	Concrete Durability	DS-12
101	General Conditions, Max. \$_____	DS-18
102	Digital Audio-Visual Coverage	DS-19
103	Project Supervision, Max. \$_____	DS-22
104	Certified Payroll Compliance and Reporting	DS-26
110	Minor Traffic Devices, Max. \$25,000	DS-28
130	Tree Protection Fence	DS-55
150	Structure, Rem Portion (Wingwall)	DS-57
151	Culv, Other Than Pipe, Rem	DS-57
155-156	Culv End, Rem	DS-58
170	Remove HMA Pavement	DS-59
171	Remove Concrete Curb or Curb & Gutter	DS-61
172	Remove Concrete Sidewalk or Drive	DS-61
280	Backfill, Structure, CIP	DS-63
281	Substructure Conc	DS-64
282	Reinforcement, Steel, Culv and Headwall	DS-64
310-312	Culv. End Section	DS-65
320-323	Culvert	DS-65
510-511	Sidewalk Station Grading	DS-66
520	Subgrade Undercutting Type II	DS-68
521	Sand Subbase Course, Class II - CIP	DS-69
522	21AA Limestone – CIP	DS-69
525	Maintenance Gravel	DS-71
530	Handpatching	DS-72
540-544	Concrete Sidewalk, Ramp, Driveway	DS-74
560	Concrete Curb and Gutter	DS-77
561	Concrete Curb Ramp Opening	DS-77
570	Detectable Warning, Cast in Place	DS-78
580	Structure Cover, Adjust	DS-80
581	Curb Box, Adjust	DS-80
701	Erosion Control, Silt Fence	DS-82
702	Erosion Control, Inlet Protection	DS-82
703	Riprap, Plain	DS-83
800	Restoration	DS-84
810	Irrigation Systems, Protect and Maintain	DS-86
825	Split Rail Fence	DS-88
850	Clean-up & Restoration, Max \$_____	DS-90

**DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE**

The entire work under this Contract shall be completed in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. The Contractor shall begin the work of this project on or before September 6, 2022; only upon receipt of the fully executed Contract and Notice to Proceed, expected after resolution to award by City Council on August 15, 2022, and the contractor's written schedule has been approved by the engineer.
2. The Contractor is expected to be furnished with the Contract for his/her execution on or before August 1, 2022. The Contractor shall properly execute the Contract and return with the required Bonds and Insurance documentation to the City within 10 days. The contractor shall not begin the work before the applicable date(s) described herein without approval from the Project Engineer.
3. All contract work must be complete and open to traffic by November 23, 2022 or within seventy-five (75) calendar days. Project completion of the work as specified herein and as directed by the Engineer, includes completion of all driveway and sidewalk construction; final HMA patching; all surface restoration including the placement of Engineer-approved topsoil, seed, and mulch blankets; plantings; clean-up of all disturbed areas including street cleaning; and, the removal of all temporary traffic control devices.
 - a. A permit application has been submitted to the State of Michigan Environment, Great Lakes, and Energy (EGLE) for the construction activities in the wetlands (Sta. 0+25 to 0+60, Sta.6+85 to 8+10, Sta. 9+00 to 10+50, and Sta. 31+45 to 31+80) and in the 100-year floodplain (Sta. 30+55 to 31+45). Upon receipt of a permit, these areas of work shall be scheduled accordingly.
 - b. Permit applications have been submitted to the Washtenaw County Water Resources Commissioner (WRC) for the construction activities in the Ellsworth Road Drain and in the Mallets Creek – Airport Branch. The permits are expected to be issued prior to anticipated start of construction.
 - c. A permit application has been submitted to Watco, representing the Ann Arbor Railroad Company, for the construction activities in the Railroad ROW (Sta. 19+36 to 20+37). Upon receipt of a permit, these areas of work shall be scheduled and coordinated accordingly.
 - d. Extensions to the contract will occur to commensurate a delay in permitting should the permit issuance occur after September 15, 2022. Upon extension, the contract work must be substantially complete by December 29, 2022 and will be charged Liquidated Damages in the amount specified elsewhere in the contract for each day after December 29, 2022.
4. **This project is on an expedited schedule.**

- a. Once construction has commenced, the Contractor shall work continuously on the project until it is satisfactorily completed and approved in writing by the Engineer.
 - b. The Contractor is expected to mobilize sufficient personnel and equipment, and work the required overtime to complete the project by the dates specified herein.
 - c. The Contractor shall not suspend work on this project unless authorized in writing by the Engineer or stipulated elsewhere in the contract documents.
 - d. Should the Contractor demonstrate that they must work on a Sunday in order to maintain the project schedule, prior approval (as defined by the Department by noon the Thursday before) they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.
5. Failure to complete work by the above described intermediate and final completion dates shall require the Contractor to pay the City as Liquidated Damages, and not as penalty, the sum of \$750.00 dollars for each and every calendar day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or time extension(s) granted thereto.
 6. All liquidated damages amounts are additive and may be charged concurrently. Should the Engineer approve a request for an extension of contract time and/or revise any intermediate or final completion date, liquidated damages will be based on the revised dates for which the time extensions specifically apply. Liquidated Damages will be charged for incomplete work during periods of seasonal suspensions.
 7. The Contractor shall provide written, updated, revisions to the approved progress schedule each week and present it to the Engineer at the weekly progress meeting, and must obtain the Engineer's approval for any proposed deviations from the most current, approved, schedule.
 8. The following workday, hour and other work restrictions are imposed by the City of Ann Arbor.

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

- Monday through Friday: 7am-8pm
- Saturday: 7am -8pm, notice given to City of Ann Arbor no less than 48 hours in advance
- Sunday: Only with written approval from the City of Ann Arbor

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

- Memorial Day, from 3pm Friday May 27 through 7am Tuesday, May 31
- Fourth of July, from 3pm Friday July 1 through 7am Tuesday, July 5

- Labor Day, from 3pm Friday September 2 through 7am Tuesday, September 6
- Thanksgiving weekend, from 3 pm Wednesday, November 23 through 7 am Monday, November 28
- Christmas weekend, from 7 pm Thursday, December 22 through 7 am Tuesday, December 27

No work shall be performed during University of Michigan home football games:

- September 3, 2022
- September 10, 2022
- September 17, 2022
- September 24, 2022
- October 15, 2022
- October 29, 2022
- November 12, 2022
- November 19, 2022

Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be considered to be included in the bid price of the Contract Item **“General Conditions, Max \$_____.”**

**DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC**

Description

1. Traffic shall be maintained in accordance with the City of Ann Arbor Public Services Department Standard Specifications except as specified in Sections 812, and 922 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD) and as amended herein.
2. The Contractor shall furnish, erect, maintain and, upon completion of the work, remove all traffic control devices within the project and around the perimeter of the project for the safety and protection of local traffic. This includes, but is not limited to, advance, regulatory, and warning signs; barricades and channeling devices at intersections or on streets where traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets; portable changeable message signs; lighted arrow boards, temporary signs, ramps and mat for pedestrian detours, and moving traffic control devices for construction operations. Payment shall be paid for as “Minor Traffic Devices, Max \$_____”.

Maintenance of Local Traffic

1. Unless otherwise indicated on the plans, all side roads shall not be closed to through traffic except during construction operations of short duration and only upon written approval of the Engineer.
2. Local access shall be maintained at all times for emergency vehicles, refuse and recycling pick-up, mail delivery and ingress/egress to private properties.
3. Contractor must accommodate the safe access to residential buildings, businesses, and parks located within construction area.
4. A lane-closure permit shall be obtained by the Contractor from the Engineering Division, at least 48 hours in advance of any proposed lane closures or traffic shifts.
5. The hours of work on all Local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the lane-closure permit. No equipment will be allowed in the street before or after these hours. Local streets may only be closed to through traffic (local access only) with written authorization of the Engineer. Aside from the detour, work must be completed each day such that all streets are re-opened to through traffic by 8:00 p.m. unless otherwise specified, directed, or authorized in writing by the Engineer. All major changes in traffic control shall be made either between 9:30 a.m. and 3:30 p.m., or between 7:00 p.m. and 8:00 p.m. in order to minimize interference with rush-hour traffic. All traffic controls must be in-place and ready for traffic each day by 7:00 a.m.
6. Driveways shall not be blocked for extended periods of time unless arrangements can be made with the affected property owner(s) or resident(s). When it becomes necessary to temporarily block driveways, the Contractor shall notify the affected property owners in advance to

**DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC**

coordinate the work and allow sufficient time for vehicles to vacate from properties. It may be necessary to allow for vehicles to temporarily park in the roadway at locations that do not interfere with the Contractor's work. During these periods the owners of the respective vehicles must be available to, with proper notice, move their vehicles if it becomes necessary to accommodate the work.

7. The Contractor shall maintain pedestrian traffic at all times covered under the pay item "Minor Traffic Devices, Max \$ ____". For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Type II barricades shall be placed by the Contractor, as directed by the Engineer. "Sidewalk Closed" and/or "Cross Here" signs shall be placed, by the Contractor, when directed by the Engineer.
8. At times when it becomes necessary to temporarily obstruct local traffic during the performance of the work, the Contractor shall provide traffic regulation in conformance with Chapter 6E of the MMUTCD. A minimum of two traffic regulators are required. The cost of traffic regulation shall be included in the contract pay item "Minor Traffic Devices, Max \$ ____".
9. The Contractor shall use quantities of dust palliative, maintenance aggregate, and hot patching mixture for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local access. The cost for the use of dust palliative, maintenance aggregate and HMA wedging mixture, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in contract pay item "General Conditions, Max. \$ ____" and it will not be paid for separately.
10. The Contractor shall perform the work of this Contract while maintaining traffic in accordance with the Contract Documents as specified herein. No traffic shall be allowed on newly placed asphalt surfaces until rolling has been satisfactorily completed and the surface has cooled sufficiently to prevent damage from traffic (170 degrees Fahrenheit). This is to be accomplished by traffic regulators and by relocating traffic control devices to prevent traffic from entering the work area until such time that it can be safely maintained without damaging the new construction. The Contractor shall provide traffic regulators in sufficient number to maintain traffic as described herein, and to keep traffic off sections being surfaced, and provide for safe travel at all times as directed by the Engineer.
11. Each pressure distributor, paver and roller shall be equipped with at least one approved flasher light which shall be mounted on the equipment so as to give a warning signal ahead and behind.
12. There may be areas where the Engineer directs the paving of less than the full width of a phase to stagger the paving joints and to accommodate changes in crown and/or cross-sectional dimensions/locations. In these locations the gravel base courses shall be constructed to the full area of the phase, and the Contractor shall place traffic control devices on the base course grade as necessary, and shall place, maintain, and remove maintenance aggregate (MDOT 21AA) all as necessary, and as directed by the Engineer, to maintain local traffic to side streets and drives.

**DETAILED SPECIFICATION
FOR
COORDINATION AND COOPERATION WITH OTHERS
AND WORK BY OTHERS**

1. The Contractor is reminded as to the requirements of article 104.08 of the 2020 edition of the MDOT Standard Specifications, "Cooperation by the Contractor."
2. The Contractor shall directly coordinate his/her work with individual City Departments/Divisions/Units.
3. The Contractor is hereby notified that the City of Ann Arbor Public Works Unit may be installing traffic control conduits, traffic signal sensors, and the like, at various locations.
4. No additional compensation will be paid to the Contractor, and no adjustments to contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.
5. The following Utility Owners may have overhead and/or underground facilities located within the Right-of-Way:
 - The City of Ann Arbor
 - DTE - MichCon (Michigan Consolidated Gas Company)
 - DTE - Edison (Detroit Edison Company)
 - AT&T
 - Comcast
 - MCI Communications
 - Sprint Communications
 - The University of Michigan

"3 Working Days before you Dig - Call MISS DIG - Toll Free" Phone No. 1-800-482-7171.

1. The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way.
2. Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.
3. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL**

The Contractor shall dispose of, off site, at the Contractor's expense, all excavated material. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES**

1. Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense.
 2. Delays to the work due to utility repairs are the sole responsibility of the Contractor.
 3. The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be back charged an amount of \$50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including subcontractors and suppliers) work.
 4. The Contractor is solely responsible for any damages to the utilities or abutting properties due to construction debris.
 5. Certain sanitary and storm sewers within the influence of construction may have been cleaned and videotaped prior to construction. The City may also choose to videotape utility line(s) during or after the work of this Contract to inspect them for damages and/or construction debris. If such inspection shows damage and/or debris, then all costs of such inspection, cleaning, repairs, etc, shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.
 6. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."
-

**DETAILED SPECIFICATION
FOR
VACUUM TYPE STREET AND UTILITY STRUCTURE CLEANING EQUIPMENT**

1. The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as and when directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to, and for street and utility structure cleaning after any and all concrete work. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.
 2. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."
-

**DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS**

1. The following materials and supplies shall be certified by the manufacturer or supplier as having been

tested for compliance with the Specifications:

HMA materials
Hot-poured Joint Sealants
Cements, coatings, admixtures and curing materials
Sands and Aggregates
Steel and Fabricated metal
Portland Cement Concrete Mixtures
Reinforcing Steel for Concrete
Reinforcing Fibers for Concrete
Pre-cast Concrete products
Sanitary Sewer Pipe
Storm Sewer Pipe
Water Main Pipe
Corrugated Metal Pipe
High Density Polyethylene Pipe
Timber for retaining walls
Modular Concrete Block for retaining walls
Edge Drain and Underdrain Pipe
Geotextile Filter Fabric and Stabilization Fabric/Grids

2. The Contractor shall submit all certifications to the Engineer for review and approval a minimum of three business days prior to any scheduled delivery, installation, and/or construction of same.
3. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
CONTRACT DRAWINGS/PLANS AND SPECIFICATIONS**

1. The Contractor shall carefully check and review all Drawings/Plans and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.
2. Bidders shall carefully examine the Bid Form, the Drawings and Specifications, and the work sites until the Bidder is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and all requirements of the contract.

**DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN**

1. The Contractor shall not work in the rain unless authorized in writing by the Engineer.

2. The Engineer may delay or stop the work due to threatening weather conditions.
3. The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain.
4. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

**DETAILED SPECIFICATION
FOR
WORKING IN THE DARK**

1. The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract.
2. The Engineer may stop the work, or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work.
3. The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons.
4. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

**DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES**

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities, and no adjustment in unit price will be made for any change in any quantity.**

**DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES**

The following notes pertain to all Plan sheets issued as part of this Contract, and these notes shall be considered part of each Plan sheet or Detailed Information Sheet.

1. All work shall conform to latest revision of the City Standard Specifications.
2. The Contractor shall maintain access to all drives throughout the course of construction. Drives

shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.

3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.
4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include, but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so as not to damage or alter in any way, any existing utility, except where specified on the Plans or where directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all of these facilities to be in good condition, with the exception of those shown on the Plans for repairs or replacement.
5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.
6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

**DETAILED SPECIFICATION
FOR
PROPERTY MARKERS, MONUMENTS AND BENCHMARKS**

1. Protection of Survey Markers
 - a. Requirements
 - i. The Contractor shall take all necessary precautions not to disturb, damage, move or destroy any property irons, monuments, benchmarks, or stakes marking the boundaries of property along or near the work.
 - ii. The Contractor shall notify the PSAA with such promptness that all property markers, monuments, and benchmarks may be properly witnessed and/or protected for later replacement by the PSAA.
 - b. Penalty or right to charge
 - i. The Contractor is solely responsible for any damage that their operation may cause to construction staking or existing survey monuments provided by the City.
 - ii. The PSAA reserves the right to charge the Contractor for all costs associated with the re-establishment of construction staking once it has been provided.

- iii. If survey monuments have been damaged by the Contractor prior to their witnessing by the City, Contractor shall be responsible for all costs included in re-establishing these points. It is particularly noted that in the case of survey Section Corners, USGS Control Points, and similar points, the costs associated with re-establishing these points can be substantial and requires specialized equipment and personnel for which the Contractor will be billed the entire cost.
-

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

DESCRIPTION

The Contractor shall furnish a Portland cement concrete mixture for this project that has been tested under this specification and shown to be resistant to excessive expansion caused by alkali-silica reactivity (ASR) and provides adequate air entrainment for freeze thaw durability. The Contractor shall construct the project with practices outlined in this specification.

MATERIALS

The materials provided for use on this project shall conform to the following requirements:

Portland cement	ASTM C 150
Fine Aggregate	ASTM C 33*
Coarse Aggregate	ASTM C 33*
Fly Ash, Class F	ASTM C 618
Slag Cement, Grade 100, 120	ASTM C 989
Silica Fume	ASTM C 1240
Blended Cements	ASTM C-595
Air Entraining Admixtures	ASTM C-260
Chemical Admixtures	ASTM C-494
White Membrane Cure	ASTM C-309 Type 2

* Fine and coarse aggregates shall consist of natural aggregates as defined in the 2020 MDOT Standard Specifications Section 902.

The Contractor shall provide documentation that all materials to be incorporated into proposed mixed designs meet the requirements of this section.

Alkali-Silica Reactivity

The Contractor shall supply to the Engineer preliminary concrete mix designs including a list and location of all suppliers of concrete materials. The Contractor shall evaluate the mixtures for the potential for excessive expansion caused by ASR and provide documentation to the Engineer. The Contractor's evaluation shall include a review of any previous testing of the material sources intended to be used for both the fine and coarse aggregates for the concrete mixtures. The previous testing may be from other projects or records provided by the material suppliers.

Aggregates shall be tested under ASTM C-1260. If the expansion of the mortar bars is less than 0.10%, at 14 days, the aggregates shall be considered innocuous and there are no restrictions for ASR mitigation required with this material.

Previous aggregate test data may be used. If no previous test data is available, for the concrete mix, that shows that it is resistant to ASR, a concrete mixture that will mitigate the potential for ASR must be designed using either method 1 or 2 as described below.

Method 1. Substitution of a portion of the cement with Class F Fly Ash, Slag Cement Grade 100 or 120 or a ternary mix (blended cement) containing a blend of Portland cement and slag cement, or Class F fly ash, or silica fume.

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The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are that the Calcium Oxide (CaO) percent shall be less than 10 % and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxides ($\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$) of 66% and a minimum SiO_2 of 38% may be used in lieu of Type F fly ash.

The maximum substitution of cement with the Slag Cement permitted shall be 40% by weight of total cementitious material (cement plus Slag Cement). The minimum replacement rate with Slag Cement shall be 25%.

For a ternary blend the total replacement of supplementary cementitious materials is 40% with a blend consisting of a maximum of 15% type F fly ash, and/or 8% silica fume and/or slag cement.

For method 1, the effectiveness of the proposed mix combination to resist the potential for excessive expansion caused by ASR shall be demonstrated using current or historic data. To demonstrate the effectiveness of the proposed mix the Contractor shall construct and test mortar bars per ASTM C1567 (14 day test) using both the fine and coarse aggregate along with the proposed cementitious material for the concrete mixture. If a mortar bar constructed of these materials produces an expansion of less than 0.10%, concrete mixture will be considered to be resistant to excessive expansion due to ASR.

If a mortar bar constructed produces an expansion of 0.10% or greater, concrete mixtures containing these materials shall not be considered resistant to the potential for excessive expansion due to ASR and shall be rejected. Additional testing, including alternate proportions or different materials will be required.

Method 2. Use low alkali cement and maintain the total alkali content from the cementitious at no more than 3.0 lbs/cyd ($\text{Na}_2\text{O}_{\text{eq}}$). The total alkali contribution is calculated by the quantity contained in the Portland cement only.

Requirements for Low Alkali Cement are that the alkali content does not exceed 0.60% expressed as Na_2O equivalent. Equivalent sodium oxide is calculated as: (percent Na_2O + 0.658 x percent K_2O).

For either method 1 or 2, if the Contractor intends to change any component material supplied after the mix design has been approved all concrete work will be suspended with no cost to the project or extensions of time, unless approved, until evaluation of the new mixtures and testing of the new materials demonstrates that it is resistant to excessive expansion due to ASR.

The Engineer and Contractor shall monitor the concrete that is delivered to the project site so as to insure that the approved mix design is being followed. The supplier shall include on the delivery ticket for each batch of concrete delivered to the job, the identification and proportions of each material batched.

When concrete is placed during cold weather, defined for the purposes of this Detailed Specification to be, air temperatures below 40° F, the use of accelerators, heated aggregates, silica fume and/or additional forms of cold weather protection will be required. Cold weather will not eliminate the requirement for furnishing and placing a concrete mix that is considered resistant to ASR attack.

Prior to cool weather placement, defined for the purposes of this Detailed Specification to be, air temperatures between 40° and 60° F, the set time of the proposed mix shall be verified under anticipated field conditions. This information shall be used when scheduling pours and saw crews.

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Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable, concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

Paver placement: During production, the plastic concrete material shall be tested for acceptance at a point ahead of the paver. The air content of the concrete mixture that the Contractor shall provide shall be known as the Acceptance Air Content (AAC). The Contractor shall also provide additional entrained air in the concrete mixture to account for the air loss which occurs in the concrete mixture experienced during transportation, consolidation and placement of the concrete. The "air loss" shall be added to the air content of the concrete mixture as established on the approved concrete mix design. The AAC for the project will be 6.0% plus an amount equal to the air loss.

For up to the first four loads, the air content measured on-site prior to placement shall be at least 8.0% and no more than 12.0%. To establish the initial AAC on the first day of paving, the air content of the first load shall be tested at the plant. After initial testing at the plant the Contractor shall provide at least two sample sets to determine the actual air loss during placement. A sample set shall consist of two samples of concrete from the same batch, one taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next higher 0.5%). After the testing and adjustment procedure(s) have been completed, the project acceptance air tests shall be taken prior to placement. The Contractor shall provide concrete to the jobsite that has an air content of plus 2.0%, or minus 1.0%, of the AAC.

After the AAC has been established, it shall be verified and/or adjusted through daily checks of the air loss through the paver. The Contractor shall check the air loss through the paver a minimum of two times a day. A Revised AAC shall be required to be established by the Contractor if the average air loss from two consecutive tests deviates by more than 0.5% from the current accepted air loss. The testing operations performed by the Contractor to establish a revised AAC shall be performed to the satisfaction of the Engineer. The Contractor shall be solely responsible for any delays and/or costs that occur to the project while establishing revised AACs.

Hand placed concrete: The air content for non-slip-form paving shall be 7.0% plus 1.5%, or minus 1.0%, at the point of placement.

CONSTRUCTION METHODS

Aggregate Control

Gradation control – The supplier shall provide a detailed stockpile management plan, describing their process control procedure for shipping, handling, and stockpiling of each aggregate including workforce training.

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Moisture control – All aggregate materials must be conditioned to a moisture content of not less than saturated surface dry (SSD) prior to batching. A watering process using an effective sprinkler system designed and operated by the Contractor shall be required on all coarse aggregate material stockpiles.

The Contractor shall provide verification that these processes have been performed by the supplier. The Engineer reserves the right to independently verify that the supplier has complied with these standards.

Mixing

Central mix plants - The total volume of the batch shall not exceed the designated size of the mixer or the rated capacity as shown on the manufacturer's rating plate.

Drum Mix Plants: After all solid materials are assembled in the mixer drum; the mixing time shall be a minimum of 60 seconds and a maximum of 5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall start after the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. Any additional slump water required shall be added to the mixing chamber by the end of the first 25% of the specified mixing time. Mixers shall not be used if the drum is not clean or if the mixing blades are damaged or badly worn

Ribbon mixers: After all solid materials are assembled in the mixer; the mixing time shall be a minimum of 30 seconds and a maximum of 2.5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall be indicated by an accurate timing device which is automatically started when the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer throughout the charging cycle. After any additional slump water is added to the mixing chamber the mixing shall continue for a minimum of 10 seconds. Mixers shall not be used if the mixer is not clean or if the mixing blades are damaged or badly worn.

Truck Mixers -The capacities and mixing capabilities shall be as defined in ASTM C 94, and each unit shall have an attached plate containing the information described therein. The plate shall be issued by the Truck Mixer Manufacturer. The mixer capacity shall not be exceeded, and the mixing speeds shall be within the designated limits. Truck mixers shall be equipped with a reliable reset revolution counter. If truck mixers are used for mixing while in transit, the revolution counter shall register the number of revolutions at mixing speed.

An authorized representative of the concrete producer shall certify that the interior of the mixer drum is clean and reasonably free of hardened concrete, that the fins or paddles are not broken or worn excessively, that the other parts are in proper working order, and that the unit has been checked by the representative within the previous 30 calendar day period to substantiate this certification. The current, signed certification shall be with the unit at all times.

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The required mixing shall be between 70 and 90 revolutions. The mixing shall be at the rate designated by the manufacturer and shall produce uniform, thoroughly mixed concrete.

The Engineer may inspect mixer units at any time to assure compliance with certification requirements, and removal of inspection ports may be required. Should the Engineer question the quality of mixing, the Engineer may check the slump variation within the batch. Should the slump variation between two samples taken, one after approximately 20% discharge and one after approximately 90% discharge of the batch, show a variation greater than 3/4 inch (20 mm) or 25% of the average of the two, whichever is greater, the Engineer may require the mixing to be increased, the batch size reduced, the charging procedure be modified or the unit removed from the work.

The practice of adding water on the site shall be discouraged. After the slump of the concrete in the first round of trucks has been adjusted on-site, the amount of water added at the plant shall be adjusted accordingly for that day's work. All additions of water on site shall be approved by the Engineer.

Curing

Apply liquid curing compound in a fine atomized spray to form a continuous, uniform film on the horizontal surface, vertical edges, curbs and back of curbs immediately after the surface moisture has disappeared, but no later than 30 minutes after concrete placement. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties.

The cure system shall be on site and tested prior to concrete placement.

Apply a curing compound at a rate of application not less than 2 gallons per 25 square yards. The Contractor shall keep the material thoroughly mixed per the Manufacturer's recommendations. The curing compound shall not be diluted.

The finished product shall appear as a uniformly painted solid white surface. Areas exhibiting a blotchy or spotty appearance shall be recoated immediately.

COMPLIANCE WITH STANDARDS

The Engineer will review and approve all material test reports and mix designs supplied by the Contractor before any placement of concrete. The Engineer will visually inspect the placed concrete and review the concrete test reports prior to final acceptance.

Acceptance sampling and testing will be performed using the sampling method and testing option selected by the Engineer. Acceptance testing will be performed at the frequency specified by the Engineer. Quality control measures to insure job control are the responsibility of the Contractor. The Engineer's testing and/or test results will not relieve the Contractor from his/her responsibilities to produce, deliver, and place concrete that meets all project requirements. The Engineer's test results are for acceptance purposes only.

If the results of the testing are not in compliance with the project specifications, the Engineer shall determine appropriate corrective action(s). Time extensions will not be granted to the Contractor during the time that the Engineer is determining the necessary corrective actions.

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all

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relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

If the Engineer decides that the material in question can remain in place, an adjustment to the contract unit price(s) may be made of up to 100% of the bid price(s) for the affected items of work.

The cost associated with complying with the requirements as described herein, including any required remedial action(s), shall be included in the cost of other items of work and shall not be paid for separately.

**DETAILED SPECIFICATION
FOR
ITEM #101 – GENERAL CONDITIONS, MAX \$ _____**

Description

This item shall include all work described and required by the Plans and Specifications for which no item of work is listed in the Bid Form, including but not limited to:

- Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities
- Protection and maintenance of Utilities
- Placing, maintaining, and removing all soil erosion and sedimentation controls
- Maintaining drainage
- Maintaining drives, drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups
- Storing all materials and equipment off lawn areas
- Temporary relocation and final replacement/re-setting of mailboxes
- Site clean-up
- Coordination efforts to furnish various HMA mixtures as directed by the Engineer
- Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer
- Furnishing and operating vacuum-type street cleaning equipment
- Furnishing and operating vacuum-type utility structure cleaning equipment
- Furnishing and operating both vibratory plate and pneumatic-type (“pogo-stick”) compactors
- Furnishing and operating a backhoe during all work activities
- Furnishing and operating a jackhammer and air compressor during all work activities
- Noise and dust control
- Mobilization(s) and demobilization(s)
- Furnishing submittals and certifications for materials and supplies
- Disposing of excavated materials and debris
- All miscellaneous and incidental items such as overhead, insurance, and permits.

Measurement and Payment

1. This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.
2. The completed work as measured for the following pay item shall be paid for at the contract unit price for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
General Conditions, Max \$ _____	Lump Sum

3. The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #102 - DIGITAL AUDIOVISUAL COVERAGE**

Description

1. The Contractor shall furnish 2 copies of the completed Audiovisual Recording to the PSAA at, or prior to, the Preconstruction Meeting. An index of the recording, which will enable any area of the project to be easily found on the recording, shall be included. The Contractor shall retain a third copy of the recording for their own use.
2. Any portion of the recording determined by the PSAA to be unacceptable for the documentation of existing conditions shall be recorded again, at the Contractor's sole expense, and submitted to the PSAA prior to mobilizing onto the site.
3. The audiovisual recording shall be:
 - a. Of professional quality, providing a clear and accurate audio and visual record of existing conditions;
 - b. Prepared during the 3-week period immediately prior to the Preconstruction Meeting; and Furnished to the PSAA a minimum of 2 weeks prior to bringing any materials or equipment to the site.
4. The audiovisual recording shall be completed in accordance with the following minimum requirements:
 - a. The audiovisual recording shall be performed using equipment that allows audio and visual information to be recorded simultaneously and in color. The recording shall be provided on a USB Flash Drive or portable drive in DVD format. The quality of the recording shall be equal to or better than the standard in the industry. The recording shall not be edited.
 - b. To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 12 feet and the recording must proceed in the general direction of travel at a speed not to exceed 48 feet per minute (0.55 miles per hour). Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.
 - c. The recording equipment shall have transparent time and date stamp and digital annotation capabilities. The final copies of the recording shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing shall be included in the lower half of the frame in standard station format (i.e., 1+00). Below the stationing, periodic information is to be shown, including project name, name of area shown, direction of travel, viewing direction, etc.
 - d. Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the recording route. Additional

**DETAILED SPECIFICATION
FOR
ITEM #102 - DIGITAL AUDIOVISUAL COVERAGE**

audio commentary shall be provided as necessary during the recording to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

- e. The recording shall be performed during a time of good visibility. The recording shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being recorded.
5. The audiovisual recording coverage shall include the following:
- a. This general criterion shall apply to all recording and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked, and/or where materials will be stored or through which they will be transported. The recording shall extend an additional 50 feet outside of all areas. The recording shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, public signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.
 - b. All private property that may be utilized by the Contractor in conjunction with this project shall be recorded. These project areas must be disclosed by the Contractor prior to using them for the work of this project.
 - c. The recording coverage shall:
 - 1) Extend to 25 feet outside of the right-of-way and easements area as indicated on the Drawings.
 - 2) Extend 25 feet outside the construction limits on all streets, including side streets.
 - d. Recording of all areas bordering the project where work is scheduled to occur or where construction traffic could damage the private property. This is to include buildings, hydrants, pavements, curbs, driveways, decks, landscaping, trees, and all other similar features.
 - e. The Contractor shall record, at their sole expense, other areas where, in their opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the PSAA in writing of such areas.
 - f. The PSAA may direct the recording of other minor areas not specified herein at the Contractor's sole expense.

**DETAILED SPECIFICATION
FOR
ITEM #102 - DIGITAL AUDIOVISUAL COVERAGE**

Payment

1. The completed work as measured for the following pay item shall be paid for at the contract unit price for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Audiovisual Recording.....	Lump Sum

2. Payment will be made for “Audiovisual Recording” following the review and acceptance of the recording by the PSAA. Within 14 days following the receipt of the recording, the PSAA will either accept it and authorize payment, or require that any discrepancies in the recording be addressed prior to making payment.
3. In the event that construction has already begun if re-recording of project areas is required, the Contractor shall be responsible for any extra costs or issues associated with re-recording the required areas due to lack of access, difficulty of access, inability to use the originally planned audiovisual equipment, or any other related costs.

**DETAILED SPECIFICATION
FOR
ITEM #103 – PROJECT SUPERVISION**

Description

1. The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies.
2. The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks. The Project Supervisor shall be a full-time employee of the General Contractor and shall have all needed authority to make binding decisions on behalf of the Contractor in all matters pertaining to performance and execution of the work of the project.
3. The Project Supervisor shall work exclusively on this project and shall put forth full effort into the organization and coordination of the work of this project.
4. One week prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the PSAA with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the PSAA, the City, the public, subcontractors, and all other parties typically involved with work of this nature. The PSAA will have the authority to reject a proposed Project Supervisor who, in the opinion of the PSAA, is deemed unqualified.
5. The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination and scheduling of the project for the duration of the Contract. The Contractor shall furnish the City with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.
6. The Project Supervisor shall be equipped by the Contractor with a “smart” mobile telephone with data and text capabilities to provide the City with 24 hour-per-day access to said Project Supervisor during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.
7. The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.
8. The Project Supervisor shall work harmoniously with the PSAA, the City, the public, subcontractors, and all other parties typically involved with work of this nature.

**DETAILED SPECIFICATION
FOR
ITEM #103 – PROJECT SUPERVISION**

9. The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, bituminous concrete, Portland cement concrete materials, and other such materials and products related to the work of this project.
10. The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors' and suppliers' work forces.
11. The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles. The Project Supervisor shall make all needed diligent and good-faith efforts to ensure that all equipment utilized in the performance of the work is properly maintained, safe, and complies with all legal and environmental requirements of the work as set forth in MDOT Specifications, Subsection 107.15 (Compliance with Laws; Environmental Protection).
12. The Project Supervisor shall be responsible for the legal, proper and safe parking/storage of all of the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employee's vehicles.
13. The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), and City inspectors.
14. The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the PSAA or City to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility. The Project Supervisor shall also schedule and complete all needed survey request forms that are needed in order to schedule the services of survey personnel to properly layout all elements of the project work in accordance with these Standards and MDOT Specifications.
15. The Project Supervisor shall coordinate, and schedule inspection performed by the City and Consultants (including material testing firms) in a timely manner, to assure proper and timely testing and inspection of the work.
16. The Project Supervisor shall submit to the PSAA an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis.
17. The Project Supervisor and all subcontractors shall attend a weekly progress meeting chaired by the PSAA to discuss the work. Upon the completion of each meeting, the PSAA shall

**DETAILED SPECIFICATION
FOR
ITEM #103 – PROJECT SUPERVISION**

prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

18. If, in the sole opinion of the PSAA, the Project Supervisor is not adequately performing the duties as outlined in this specification, the following system of notices will be given to the contractor with the associated penalties:
 - a. A warning will be issued in writing to the Contractor detailing the deficiencies in the Project Supervision. The Contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a second notice.
 - b. A second warning will be issued in writing to the contractor further detailing the deficiencies in the Project Supervision. The Contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a third notice. At this time, the PSAA reserves the right to meet with personnel with the necessary authority within the Contractor's organization to discuss the deficiencies in the Project Supervision.
 - c. An additional deduction of 25% will be made from the original Project Supervision contract amount, and the Project Supervisor shall be removed from the project, and replaced immediately with another individual to be approved by the Supervising Professional.

19. Should, in the sole opinion of the PSAA, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the above system of notices may be waived, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the PSAA, shall be considered basis for the PSAA to suspend work without extension of contract time or additional compensation.

Measurement and Payment

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

2. The completed work as measured for the following pay item shall be paid for at the contract unit price for the following contract item (pay item):

**DETAILED SPECIFICATION
FOR
ITEM #103 – PROJECT SUPERVISION**

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Project Supervision, Max \$ _____Lump Sum

3. The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #104 – CERTIFIED PAYROLL COMPLIANCE AND REPORTING**

Description

1. This specification covers all administrative requirements, payroll reporting procedures to be followed by Contractors performing work on City-sponsored public improvements projects, and all other miscellaneous and incidental costs associated with complying with the applicable sections of the City of Ann Arbor Code of Ordinances with regard to payment of prevailing wages and its Prevailing Wage Compliance policy.
2. This specification is not intended to include the actual labor costs associated with the payment of prevailing wages as required. Those costs should be properly incorporated in all other items of work bid.
3. The Contractor is expected to comply with all applicable sections of Federal and State prevailing wage laws, duly promulgated regulations, the City of Ann Arbor Code of Ordinances, and its Prevailing Wage Compliance Policy as defined within the contract documents. The Contractor shall provide the required certified payrolls, city-required declarations, and reports requested elsewhere in the contract documents within the timeline(s) stipulated therein.
4. The Contractor shall also provide corrected copies of any submitted documents that are found to contain errors, omissions, inconsistencies, or other defects that render the report invalid. The corrected copies shall be provided when requested by the Supervising Professional.
5. The Contractor shall also attend any required meetings as needed to fully discuss and ensure compliance with the contract requirements regarding prevailing wage compliance. The Contractor shall require all employees engaged in on-site work to participate in, provide the requested information to the extent practicable, and cooperate in the interview process. The City of Ann Arbor will provided the needed language interpreters in order to perform wage rate interviews or other field investigations as needed.
6. Certified Payrolls may be submitted on City-provided forms or forms used by the Contractor, as long as the Contractor's forms contain all required payroll information. If the Contractor elects to provide their own forms, the forms shall be approved by the Supervising Professional prior to the beginning of on-site work.
7. The City of Ann Arbor will examine the submitted cost for this item of work prior to contract award. If the City determines, in its sole discretion, that the costs bid by the Contractor for complying with the contract requirements are not reasonable, accurately reported, or may contain discrepancies, the City reserves the right to request additional documentation that fully supports and justifies the price as bid. Should the submitted information not be determined to be reasonable or justify the costs, the City reserves the right to pursue award of the contract to the second low bidder without penalty or prejudice to any other remedies that it may have or may elect to exercise with respect to the original low-bidder.

**DETAILED SPECIFICATION
FOR
ITEM #104 – CERTIFIED PAYROLL COMPLIANCE AND REPORTING**

8. The Contract Completion date will not be extended as a result of the City’s investigation of the as-bid amount for this item of work, even if the anticipated contract award date must be adjusted. The only exception will be if the Contractor adequately demonstrates that their costs were appropriate and justifiable. If so, the City will adjust the contract completion date by the number of calendar days commensurate with the length of the investigation, if the published Notice to Proceed date of the work cannot be met. The contract unit prices for all other items of work will not be adjusted regardless of an adjustment of the contract completion date being made.

Measurement and Payment

1. The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Certified Payroll	Lump Sum

2. The unit price for this item of work shall include all supervisory, accounting, administrative, and equipment costs needed to monitor and perform all work related to maintaining compliance with the tasks specified in this Detailed Specification, the City of Ann Arbor Code of Ordinances, its Prevailing Wage Compliance policy and the applicable Federal and State laws.
3. Payment for this work will be made with each progress payment, on a pro-rata basis, based on the percentage of payrolls approved by the City. When all of the work of this contract has been completed, the measurement of this item shall be 1.0 times the Lump Sum bid amount. This amount will not be increased for any reason, including extensions of time, extra work, and/or adjustments to existing items of work.

**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, Max. \$ _____**

DESCRIPTION

1. The work of Temporary Traffic Devices shall consist of protecting and maintaining vehicular and pedestrian traffic as shown on the plans, in the Maintenance of Traffic specification, and as directed by the Engineer, in accordance with Sections and 812 of the 2020 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein. These devices include, but not limited to, advance, regulatory, and warning signs; barricades and channeling devices at intersecting streets on which traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets; changeable message signs; lighted arrow boards; sign/signal covers and pavement marking cover tape for construction operations.
2. The work of Minor Traffic Devices shall include, but not be limited to:
 - The furnishing and operating of miscellaneous signs, warning devices, flag-persons, and cones;
 - The operation of additional signs furnished by the City;
 - Maintaining pedestrian traffic;
 - Temporarily covering traffic controls;
 - Temporarily covering existing signs as directed;
 - Temporarily covering existing pavement markings and symbols as directed;
 - Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.
3. The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of flag-persons, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the MMUTCD are included in this detailed specification.
4. The following, and herein included, Michigan Department of Transportation (MDOT) Maintaining Traffic Typicals, and Work Zone Device Standard Plans and Special Details apply to the project: M0020a, M0040a, M0110a, M0232a, WZD-100-A, and WZD-125-E.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

1. Materials and equipment shall meet the requirements specified in the above-designated sections of the MDOT Standard Specifications.
2. All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.
3. All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, Max. \$ _____**

4. The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.
5. The Contractor shall replace missing or damaged traffic control devices, as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

Lighted Plastic Drums; Channelizing Devices, Barricades; Temporary Signs; Portable Changeable Message Signs; Lighted Arrow Boards; Pavement Marking Cover Tape; Temporary Pavement Markings

1. The Contractor shall furnish and operate these items as directed by the Engineer.
2. Traffic control devices meeting current MDOT and MMUTCD specifications shall be used on this project.
3. Lighted plastic drums shall be sufficiently ballasted to minimize tipping.
4. Use only plastic drums for channelizing devices when implementing any/all lane closures. 42 inch channelizing devices are permissible at certain locations with approval from the Engineer.
5. Type II and III barricades shall have standard orange-and-white stripes on both sides of the barricade.
6. Sufficient signs shall be provided by the Contractor to ensure the safety of the workers and the general public in accordance with the current MMUTCD.
7. "Road Work Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.
8. Use sign sizes shown on the plans, unless otherwise directed by the Engineer. Install all temporary signs on driven posts, which are to remain in the same place for 14 days or more. Install all other temporary signs on portable supports. Install all signs to have a minimum bottom height of 7.0 feet.
9. Removable black pavement marking cover tape shall be used to cover conflicting pavement markings as directed by the Engineer.
10. Temporary pavement markings may be used within transition areas as directed by the Engineer and shall be removable.

MEASUREMENT AND PAYMENT

1. This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum.

**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, Max. \$ _____**

2. The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM

Minor Traffic Devices, Max \$ _____

PAY UNIT

Lump Sum

3. The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET FEET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
1	10	15	20	27	45	50	55	60	65	70
2	21	30	41	53	90	100	110	120	130	140
3	31	45	61	80	135	150	165	180	195	210
4	42	60	82	107	180	200	220	240	260	280
5	52	75	102	133	225	250	275	300	325	350
6	63	90	123	160	270	300	330	360	390	420
7	73	105	143	187	315	350	385	420	455	490
8	83	120	163	213	360	400	440	480	520	560
9	94	135	184	240	405	450	495	540	585	630
10	104	150	204	267	450	500	550	600	650	700
11	115	165	225	293	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840
13	135	195	266	347	585	650	715	780	845	910
14	146	210	286	374	630	700	770	840	910	980
15	157	225	307	400	675	750	825	900	975	1050

TAPER LENGTH "L" IN FEET

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

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

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

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

TYPES OF TAPERS

UPSTREAM TAPERS


- MERGING TAPER
- SHIFTING TAPER
- SHOULDER TAPER
- TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS

(USE IS OPTIONAL)

TAPER LENGTH

- L - MINIMUM
- 1/2 L - MINIMUM
- 1/3 L - MINIMUM
- 100' - MAXIMUM
- 100' - MINIMUM (PER LANE)

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L", "D" AND "B" VALUES		
	DRAWN BY: CON:AE:djf CHECKED BY: BMM FILE: K:\DGN\TSR\STDS\ENGLISH\MNTTRF\M0020a.dgn	JUNE 2006 PLAN DATE:	M0020a

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON
"WHERE WORKERS PRESENT" SEQUENCES


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

GUIDELINES FOR LENGTH OF
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

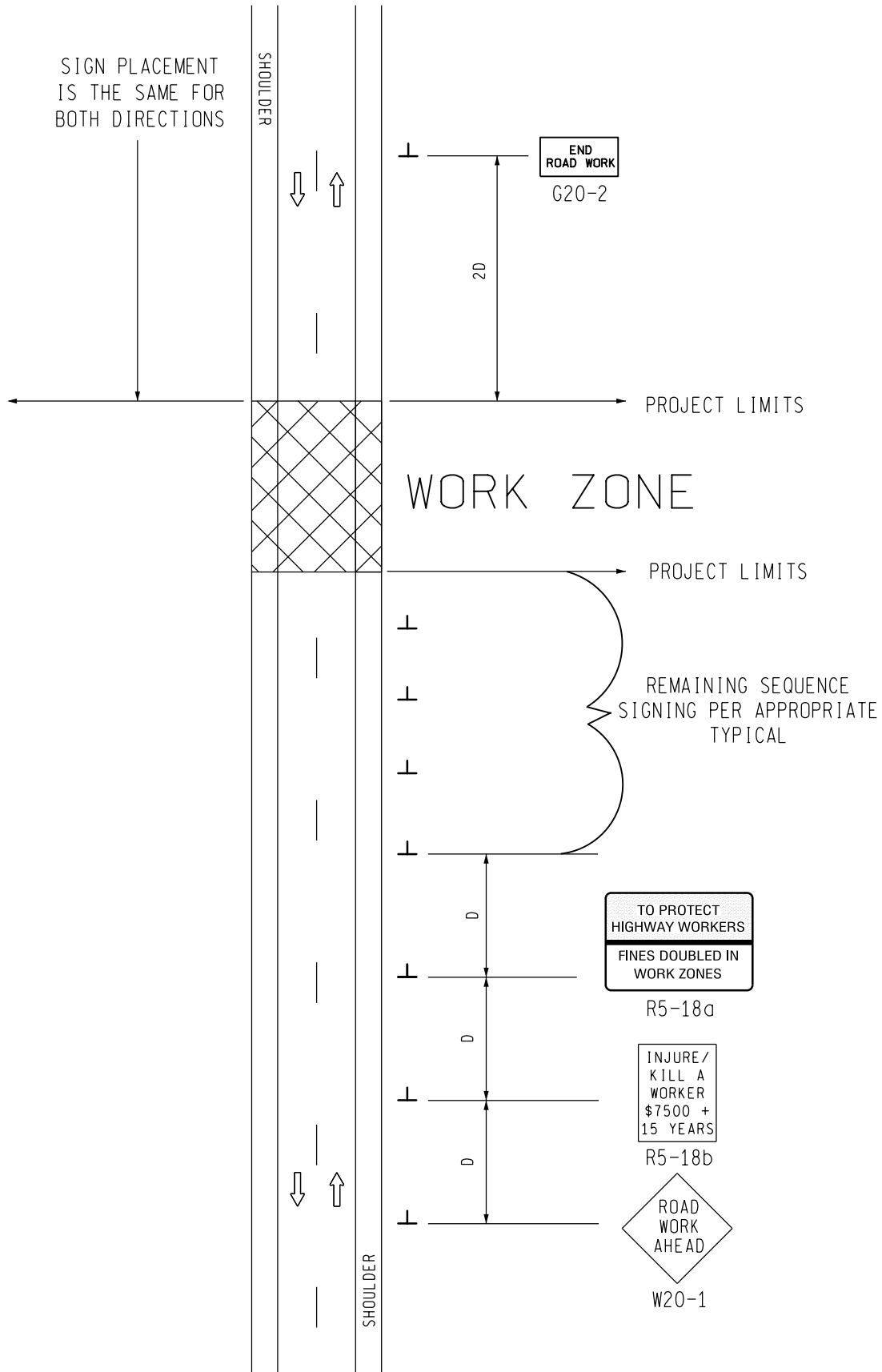
* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L", "D" AND "B" VALUES		
	DRAWN BY: CON:AE:djf CHECKED BY: BMM FILE: K:\7DGN\TSR\STDS\ENGLISH\MNTTRF\M0020a.dgn	JUNE 2006 PLAN DATE:	M0020a



SIGN PLACEMENT IS THE SAME FOR BOTH DIRECTIONS



SIGN = 68 f+2 - TYPE B FOR ONE DIRECTION OF TRAFFIC W20-1 QUANTITY INCLUDED WITH APPROPRIATE TYPICAL FOR SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF LESS THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY

DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

OCTOBER 2011
PLAN DATE:

M0040a

SHEET
1 OF 2


NOT TO SCALE

NOTES

30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
32. THESE SIGNS SHALL BE LEFT IN PLACE AT THEIR PRESCRIBED LOCATIONS FOR THE DURATION OF THE PROJECT AND UNTIL ALL TEMPORARY TRAFFIC CONTROL HAS BEEN REMOVED.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.



SIGN SIZES

G20-2	-	48" x 24"
R5-18a	-	96" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

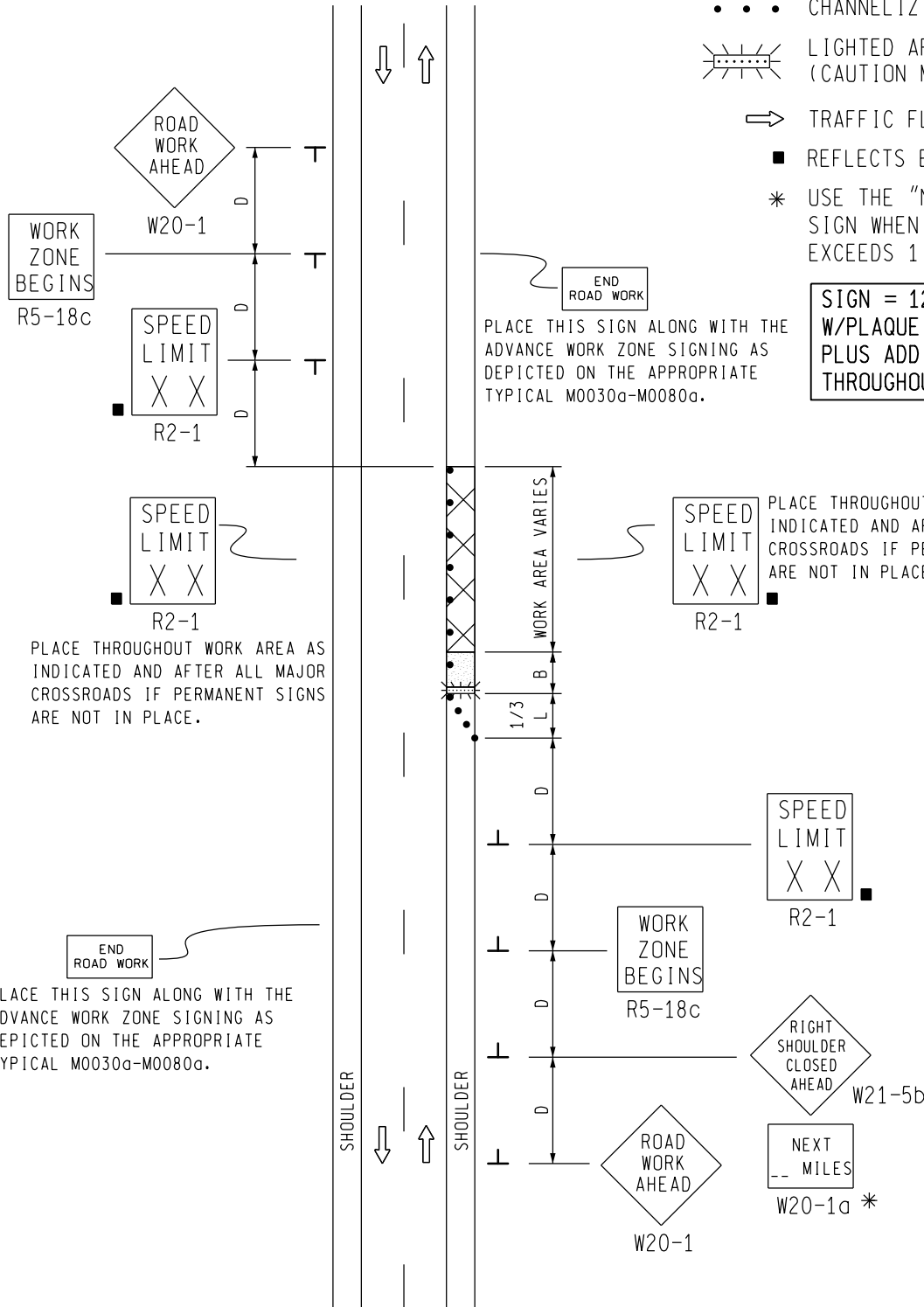
 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF LESS THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY	
	DRAWN BY: CON:AE:djf	OCTOBER 2011
CHECKED BY: BMM:CRB	PLAN DATE:	2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0040a.dgn REV. 10/13/2011		

NOT TO SCALE

KEY

- • • CHANNELIZING DEVICES
-  LIGHTED ARROW PANEL (CAUTION MODE)
-  TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- * USE THE "NEXT -- MILES" SIGN WHEN SHOULDER CLOSURE EXCEEDS 1 MILE IN LENGTH

SIGN = 120 ft± - TYPE B
 W/PLAQUE = 132 ft± - TYPE B
 PLUS ADDITIONAL R2-1's
 THROUGHOUT WORK AREA




END ROAD WORK
 PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

SPEED LIMIT XX
 R2-1
 PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

SPEED LIMIT XX
 R2-1
 PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

END ROAD WORK
 PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A SHOULDER CLOSURE ON A TWO LANE TWO-WAY ROADWAY NO SPEED REDUCTION	
	DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB	OCTOBER 2011 PLAN DATE:
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0110a.dgn REV. 10/04/2011		

NOT TO SCALE


NOTES

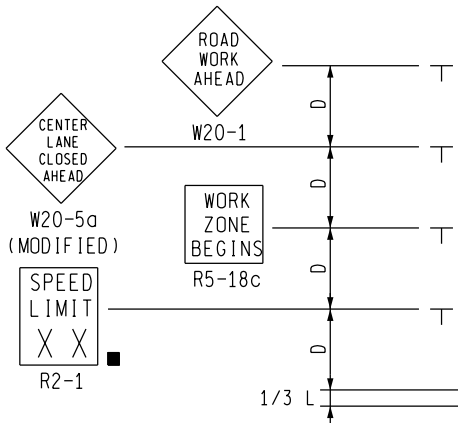
1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 29A. THE TYPE OF REFLECTIVE SHEETING USED FOR THE W20-1a PLAQUE SHALL BE THE SAME AS THE TYPE USED FOR THE PARENT SIGN.

SIGN SIZES

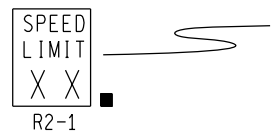
DIAMOND WARNING	- 48" x 48"
W20-1a PLAQUE	- 48" x 36"
R2-1 REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"

NOT TO SCALE

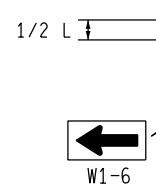
 MDOT Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A SHOULDER CLOSURE ON A TWO LANE TWO-WAY ROADWAY NO SPEED REDUCTION
DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB	OCTOBER 2011 PLAN DATE:
DS-36 FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0110a.dgn REV. 10/04/2011	M0110a SHEET 2 OF 2



NO SPEED REDUCTION THIS DIRECTION

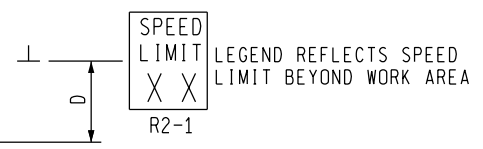


PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

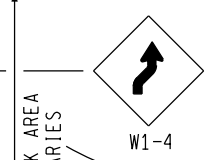


PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0050a.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0050a.

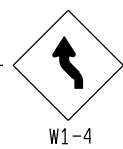
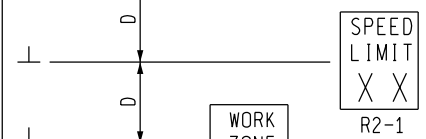


1/2 L
1/2 D



PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

1/2 L
1/3 L



KEY

- • • CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ➡ TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 200 ft ± 2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA

↑ MAXIMUM 10MPH SPEED REDUCTION THIS DIRECTION

<p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>		<p>TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A THREE LANE ROADWAY WITH CLFLTO AND SHIFTING ONE THROUGH LANE INTO THE CLFLTO USING A SINGLE STEP DOWN IN SPEED LIMIT IN ONE DIRECTION ONLY</p>	
<p>DRAWN BY: CON:AE:DJF CHECKED BY: BMM:CRB</p>	<p>OCTOBER 2011 PLAN DATE:</p>	<p>M0232a</p>	<p>SHEET 1 OF 2</p>
<p>FILE: PW: RD/T&S/Typicals/Signs/MT/MT NonFwy/M0232a REV. 10/18/2011</p>			

NOT TO SCALE


NOTES

- 1F. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/2 L$, AND $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE M0020a FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN SIZES

DIAMOND WARNING	- 48" x 48"
W1-6 WARNING	- 48" x 24"
RECTANGULAR REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A THREE LANE ROADWAY WITH CLFLTO AND SHIFTING ONE THROUGH LANE INTO THE CLFLTO USING A SINGLE STEP DOWN IN SPEED LIMIT IN ONE DIRECTION ONLY		
	DRAWN BY: CON:AE:DJF	OCTOBER 2011	M0232a
CHECKED BY: BMM:CRB	PLAN DATE:	2 OF 2	
FILE: PW: RD/T&S/Typicals/Signs/MT/MT NonFwy/M0232a REV. 10/18/2011			

SIGN MATERIAL SELECTION TABLE

SIGN SIZE	SIGN MATERIAL TYPE		
	TYPE I	TYPE II	TYPE III
≤ 36" X 36"		X	X
>36" X 36" ≤ 96" TO WIDE		X	
> 96" WIDE TO 144" WIDE	X	X	
> 144" WIDE	X		


TYPE I ALUMINUM EXTRUSION
 TYPE II PLYWOOD
 TYPE III ALUMINUM SHEET

ROUNDING OF CORNERS IS NOT REQUIRED FOR TYPE I OR II SIGNS.
 VERTICAL JOINTS ARE NOT PERMITTED.
 HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE NOT PERMITTED.

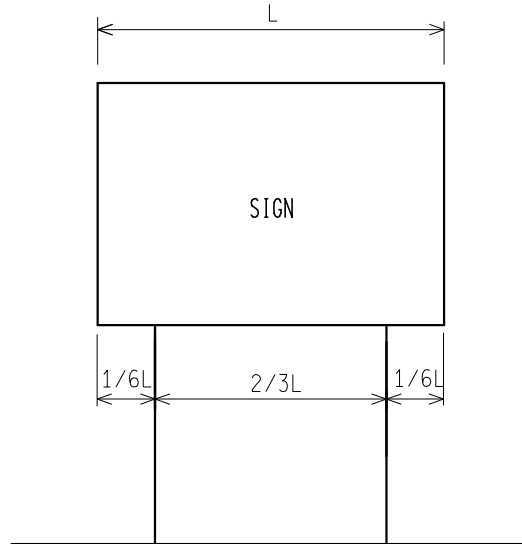
POST SIZE REQUIREMENTS TABLE

SIGN AREA (ft ²)	POST TYPE		
	U-CHANNEL STEEL	SQUARE TUBULAR STEEL	WOOD
≤ 9	1 - 3 lb/ft*	1 - 2" 12 or 14 GA*	N/A
9 ≤ 20	2 - 3 lb/ft	2 - 2" 12 or 14 GA	1 - 4" X 6"*
> 20 ≤ 30	N/A	N/A	2 - 4" X 6"
> 30 ≤ 60	N/A	N/A	2 - 6" X 8"
> 60 ≤ 84	N/A	N/A	3 - 6" X 8"

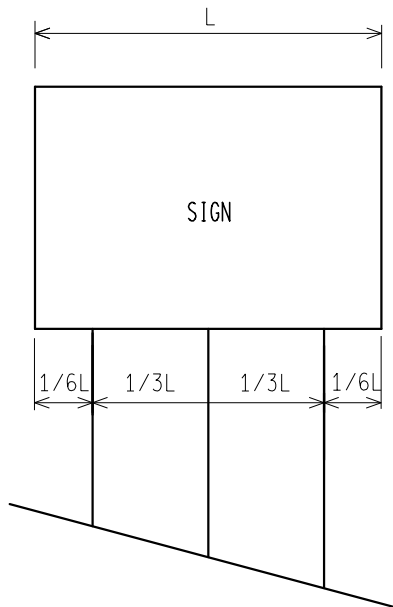
*SIGNS 4 FEET AND GREATER IN WIDTH REQUIRE 2 POSTS.
 SIGNS GREATER THAN 8 FEET IN WIDTH REQUIRE 2 OR 3 WOOD
 POSTS DEPENDING ON AREA OF SIGN.
 A MAXIMUM OF 2 POSTS WITHIN A 7' PATH IS PERMITTED.

 PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS		
	DRAWN BY: <u>CON/ECH</u> CHECKED BY: <u>AUG</u>	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	_____ F.H.W.A. APPROVAL	<u>11/2/2017</u> PLAN DATE

2 POST SIGN SUPPORT SPACING



3 POST SIGN SUPPORT SPACING



* FOR ALL 11' AND 12' LONG SIGNS ON 3 WOOD SUPPORTS, SPREAD POSTS SO AS TO HAVE A 8' MIN. TO 9' MAX. DISTANCE BETWEEN OUTSIDE POSTS.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

F.H.W.A. APPROVAL

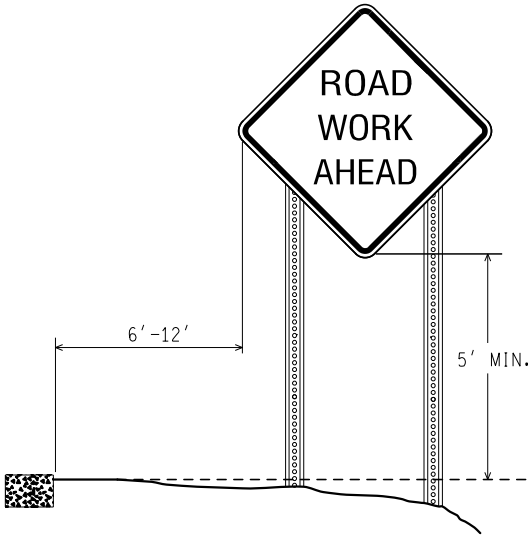
11/2/2017
PLAN DATE

WZD-100-A

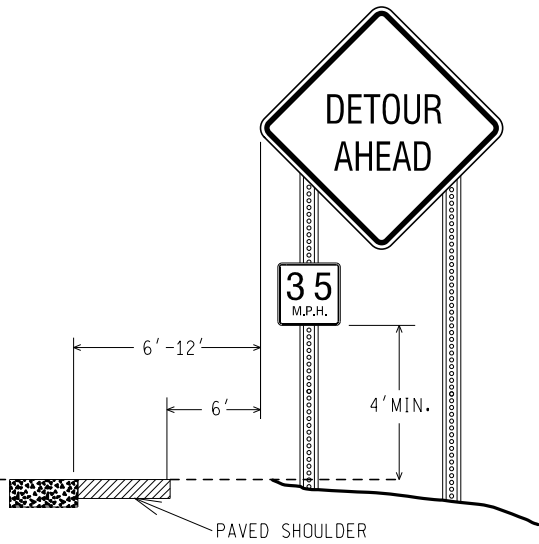
SHEET
2 OF 11

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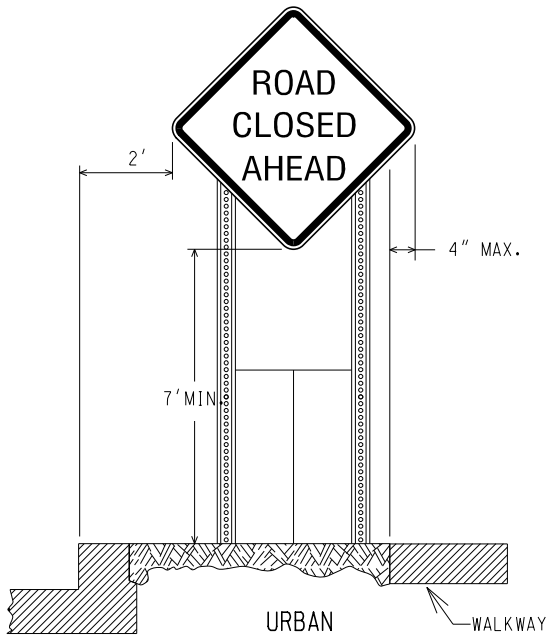
DS-40



RURAL

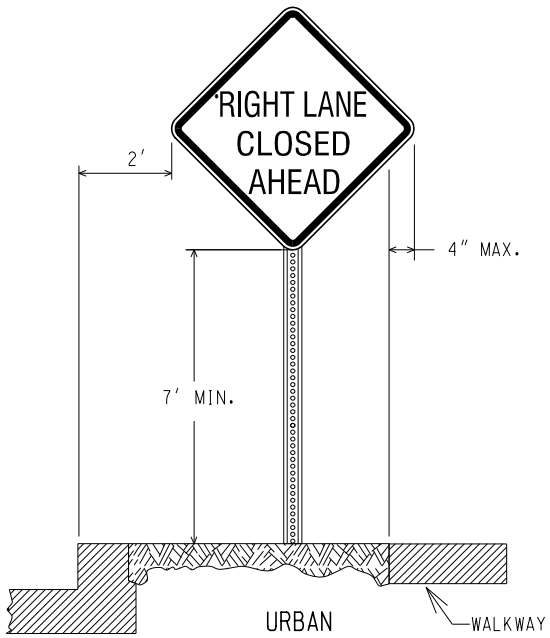


RURAL WITH ADVISORY SPEED PLATE



URBAN

WALKWAY



URBAN

WALKWAY

(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)

(CURBED AREAS OR WHERE WALKWAYS ARE PRESENT)

BOTTOM HEIGHT AND OFFSET

NOT TO SCALE

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BUREAU OF DEVELOPMENT STANDARD PLAN

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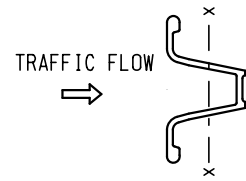
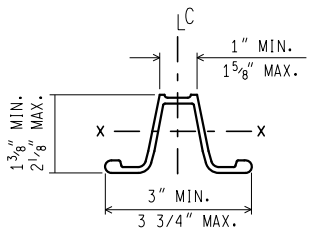
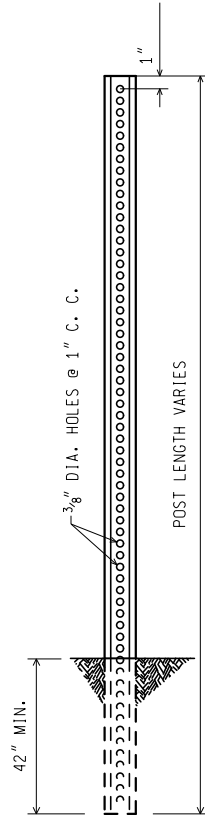
11/2/2017
PLAN DATE

WZD-100-A

SHEET
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DS-41



WEIGHT = 3 lbs/ft
 SECT. MOD. X.-X. = 0.31 CUBIC INCHES MIN.

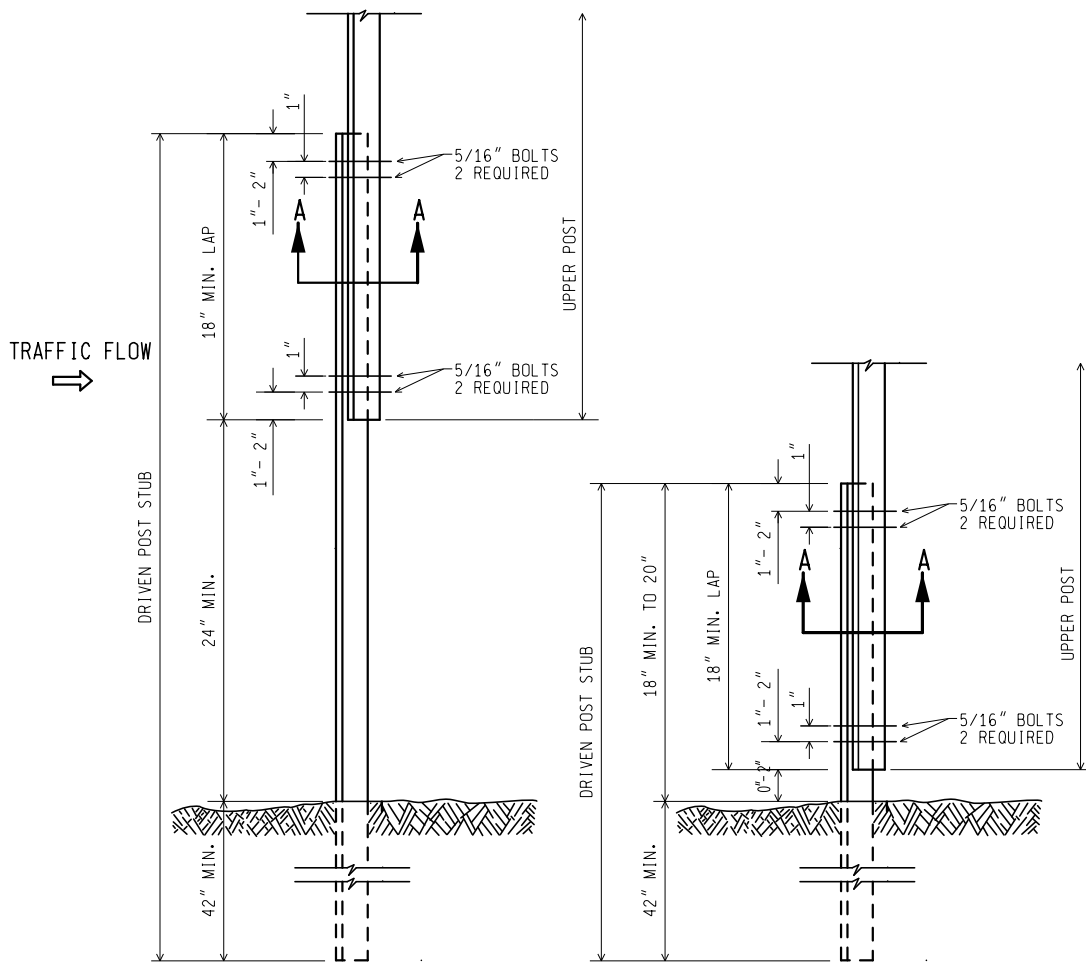
3 lb. U - CHANNEL STEEL POST
 (NO SPLICE)

MOUNT SIGN ON OPEN FACE OF
 U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 4 OF 11
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UPPER SPLICE

LOWER SPLICE

3 lb. U - CHANNEL STEEL POST
(WITH SPLICE)

MOUNT SIGN ON OPEN FACE OF
UPPER U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

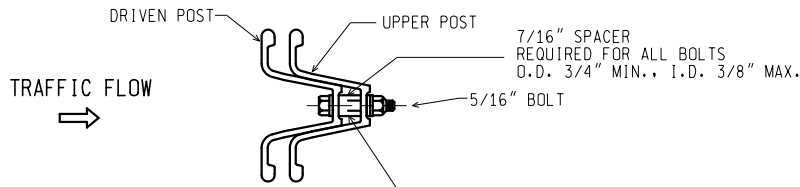
F.H.W.A. APPROVAL

11/2/2017
PLAN DATE

WZD-100-A

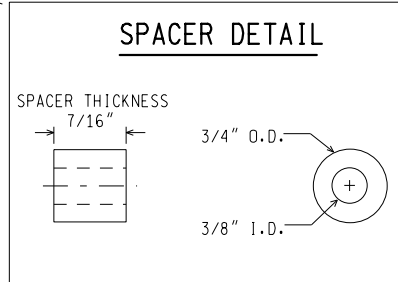
SHEET
5 OF 11

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SECTION A-A

7/16" SPACER
 REQUIRED FOR ALL BOLTS
 O.D. 3/4" MIN., I.D. 3/8" MAX.



NOTES:

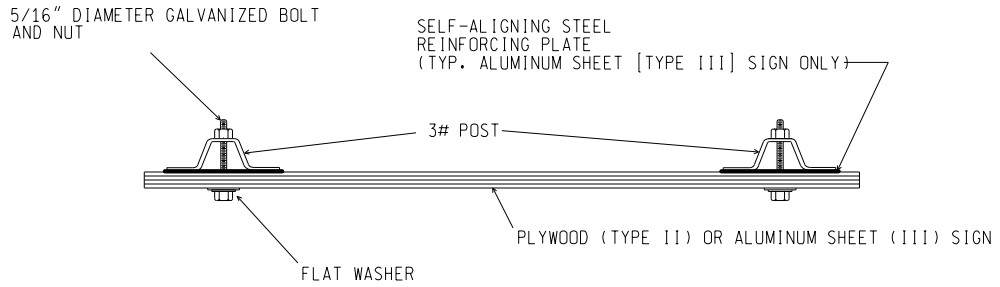
1. THE SPACER THICKNESS SHALL BE 1/16" LESS THAN THE GAP BETWEEN THE POST WHEN POSITIONED IN THE UNBOLTED CONFIGURATION.
2. THE EXTERIOR BOLT (CLOSEST TO LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN A PREPUNCHED HOLE 1" TO 2" FROM THE END OF THE LAP.
3. THE INTERIOR BOLT (FARTHEST FROM LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN THE NEXT PREPUNCHED HOLE.
4. THE DRIVEN POST SHALL ALWAYS BE MOUNTED IN FRONT OF THE UPPER POST WITH RESPECT TO THE ADJACENT ONCOMING TRAFFIC, REGARDLESS OF THE DIRECTION THE SIGN IS FACING.
5. THE SPLICE LAP SHALL BE FASTENED BY FOUR-5/16" DIA. GALVANIZED A449 BOLTS (SAE J429 GRADE 5) OR GALVANIZED A325 BOLTS.

3 lb. U - CHANNEL STEEL POST
 (WITH SPLICE)

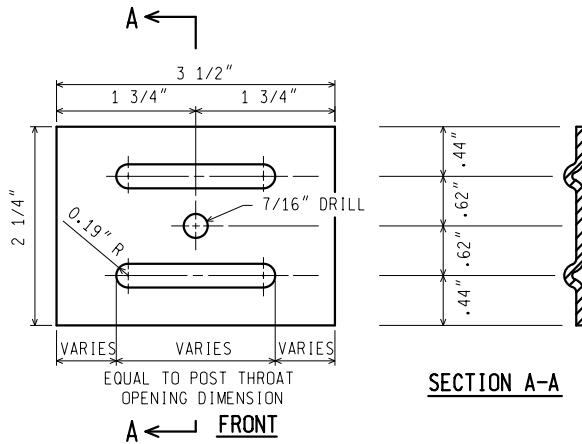
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 6 OF 11
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SIGN TO 3 lb. POST CONNECTION



NOTES: (FOR STEEL SIGN REINF' PLATE)

1. MATERIAL: 12 GAUGE CARBON STEEL.
2. TOLERANCE ON ALL DIMENSIONS $\pm 0.0625"$
3. FINISH-AFTER STAMPING AND PUNCHING, GALVANIZE ACCORDING TO CURRENT SPECIFICATIONS FOR ZINC (HOT GALVANIZE) COATINGS ON PRODUCTS FABRICATED FROM PLATES OR STRIPS

STEEL SIGN REINFORCING PLATE
REQUIRED FOR TYPE III SIGNS ONLY

3 lb. U - CHANNEL STEEL POST SIGN CONNECTION

NOT TO SCALE

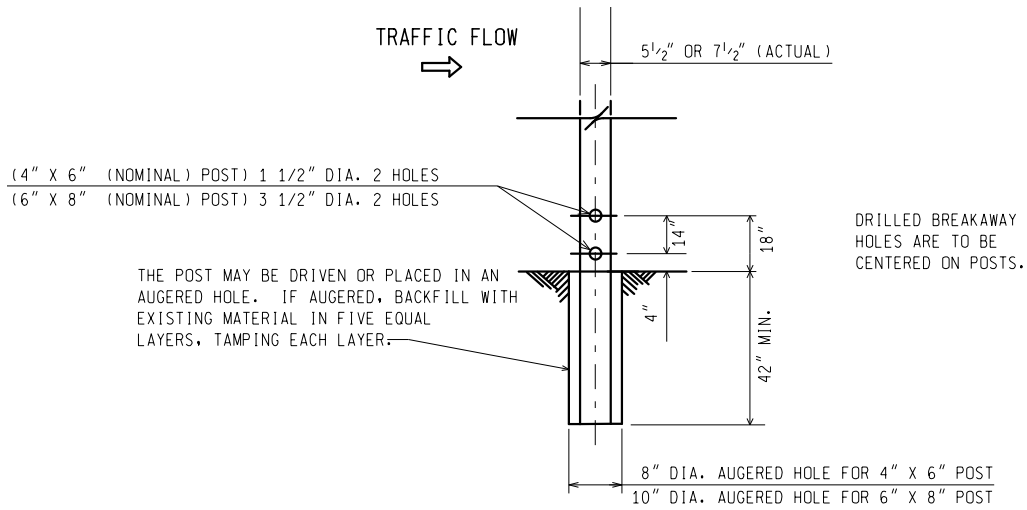
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

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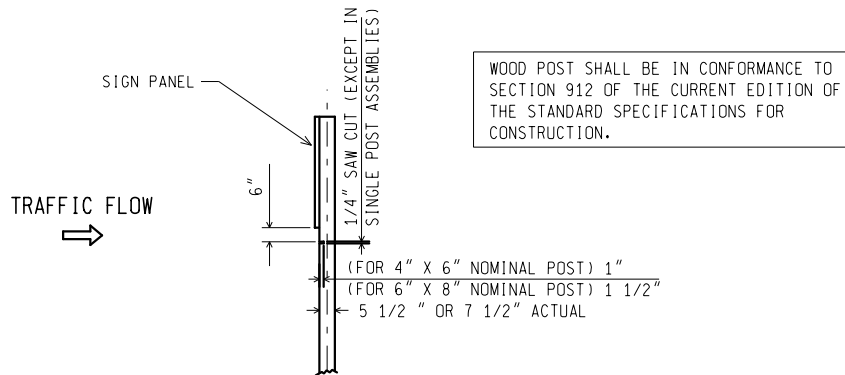
11/2/2017
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WOOD POST BREAKAWAY HOLES/
DIRECT EMBEDMENT DETAILS



SAW CUT DETAIL
(MULTIPLE POST INSTALLATIONS)

WOOD POST DETAILS

NOT TO SCALE

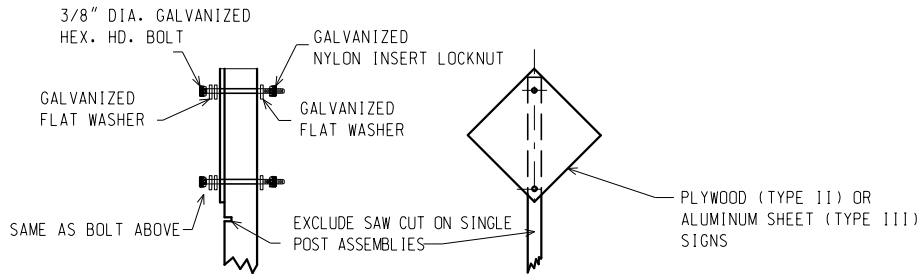
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

F.H.W.A. APPROVAL

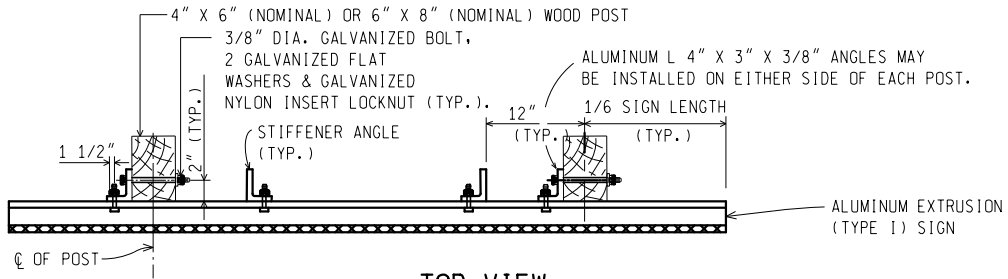
11/2/2017
PLAN DATE

WZD-100-A

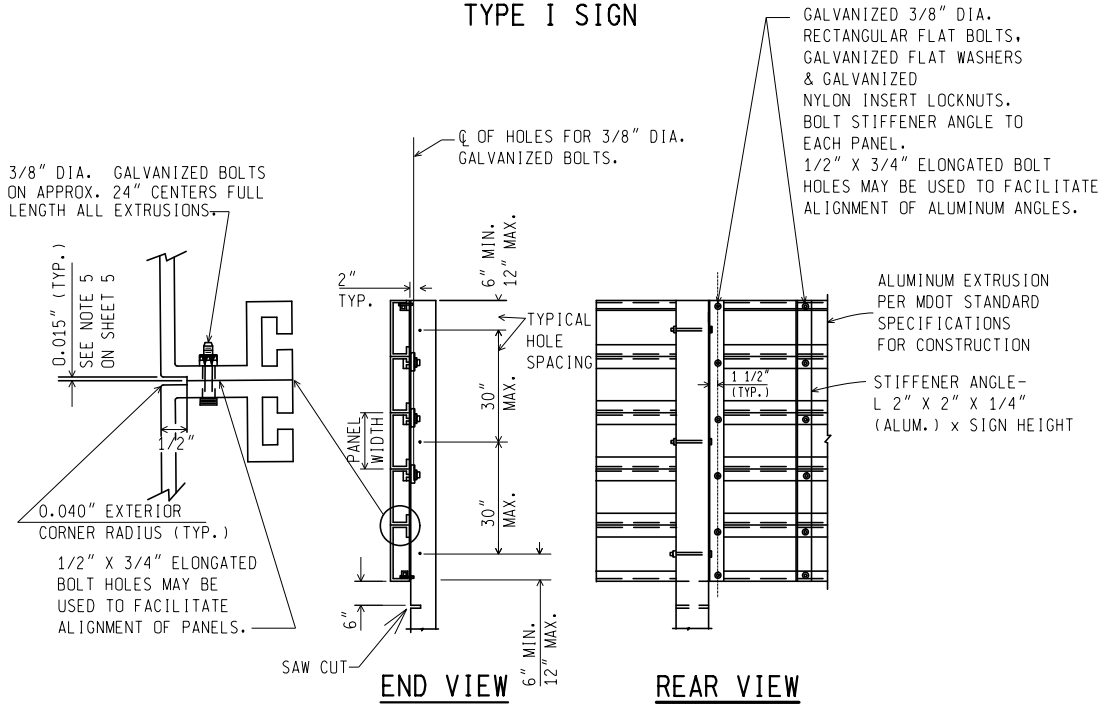
SHEET
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TYPE II AND TYPE III SIGNS



**TOP VIEW
TYPE I SIGN**



TYPE I SIGN - ERECTION DETAILS

WOOD POST CONNECTIONS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

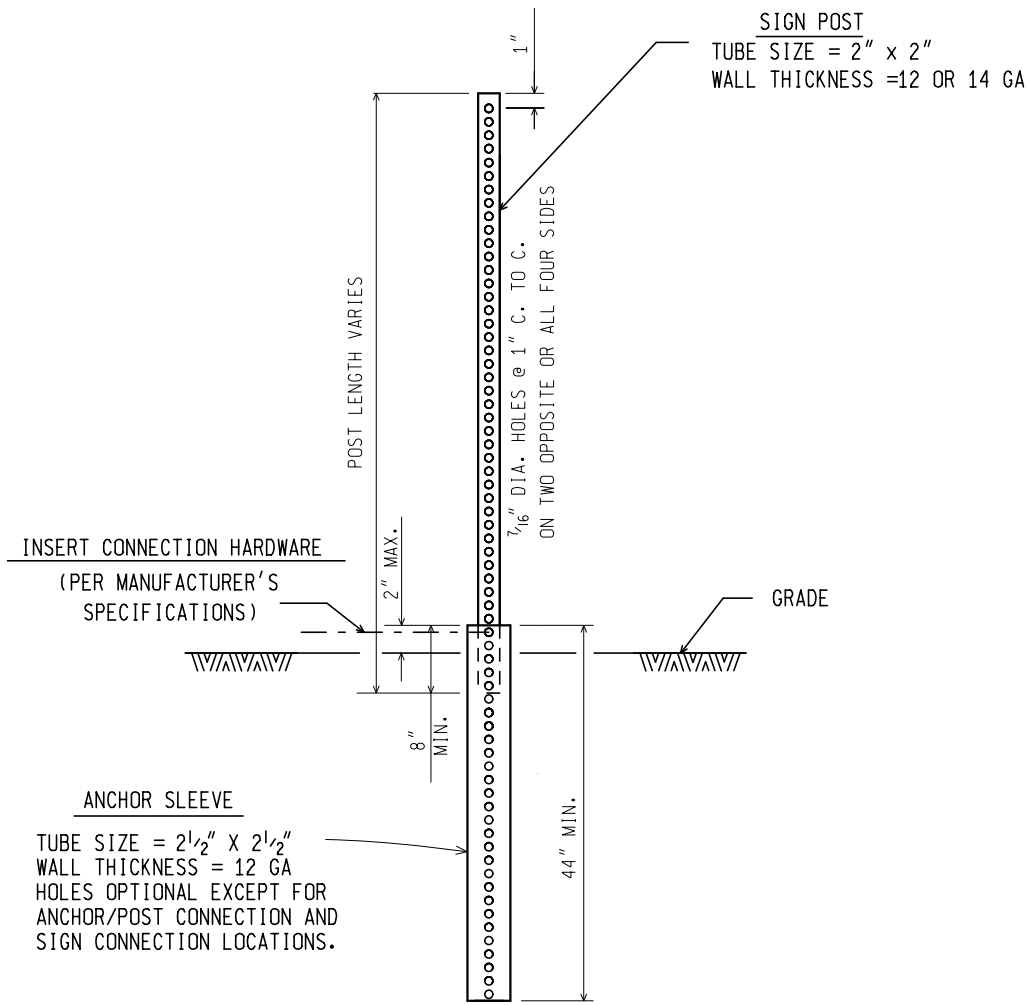
F.H.W.A. APPROVAL

11/2/2017
PLAN DATE

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SQUARE TUBULAR STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 10 OF 11
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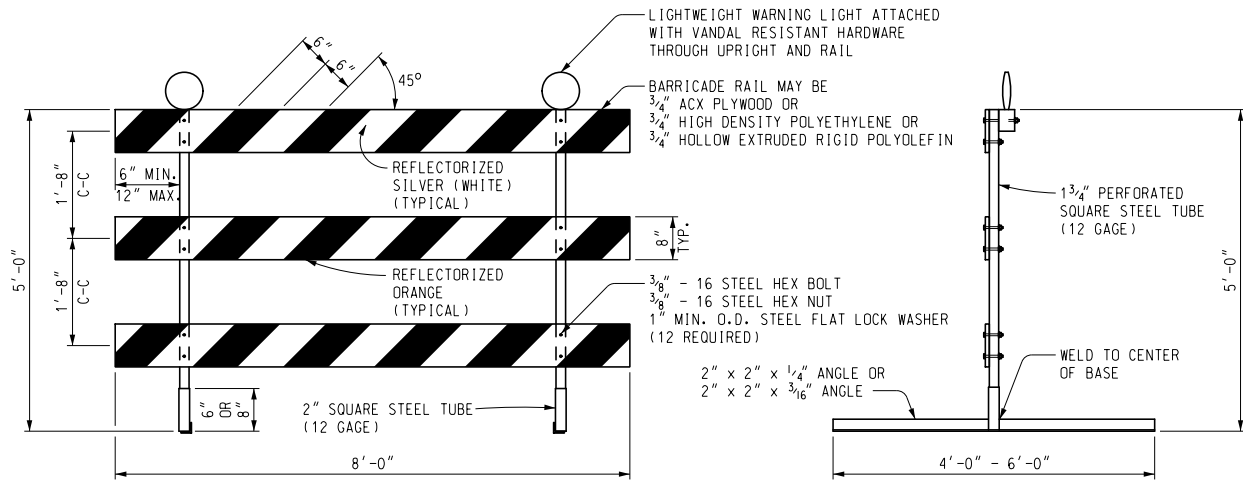
GENERAL NOTES:

1. A MAXIMUM OF TWO POSTS WITHIN A 7 FOOT PATH IS PERMITTED.
2. ALL SIGN POSTS SHALL COMPLY WITH NCHRP 350.
3. ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 42".
4. BRACING OF POST IS NOT PERMITTED.
5. SIGN SHALL BE LEVEL, AND UPRIGHT FOR THE DURATION OF INSTALLATION.
6. ERECT POSTS SO THE SIGN FACE AND SUPPORTS DO NOT VARY FROM PLUMB BY MORE THAN 3/16" IN 3'. PROVIDE A CENTER-TO-CENTER DISTANCE BETWEEN POSTS WITHIN 2 PERCENT OF PLAN DISTANCE.
7. NO MORE THAN ONE SPLICE PER POST, AS SHOWN, WILL BE PERMITTED.
8. POST TYPES SHALL NOT BE MIXED WITHIN A SIGN SUPPORT INSTALLATION.
9. NO VERTICAL JOINTS ARE PERMITTED IN SIGN. NO HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE PERMITTED IN SIGN
10. REMOVE SIGN POSTS AND/OR POST STUBS IN THEIR ENTIRETY WHEN NO LONGER REQUIRED.
11. ALL LABOR, MATERIALS, AND EQUIPMENT, INCLUDING TEMPORARY SUPPORTS REQUIRED TO INSTALL, MAINTAIN, RELOCATE, AND/OR REMOVE THE TEMPORARY SIGN, INCLUDING SUPPORTS, ARE CONSIDERED TO BE INCLUDED IN THE COST OF THE TEMPORARY SIGN.
12. SAW CUTS IN WOOD POSTS ARE TO BE PARALLEL TO THE BOTTOM OF THE SIGN.
13. POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE TOP OF SIGN.
14. TEMPORARY WOOD SUPPORTS DO NOT REQUIRE PRESERVATIVE TREATMENT.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 11 OF 11
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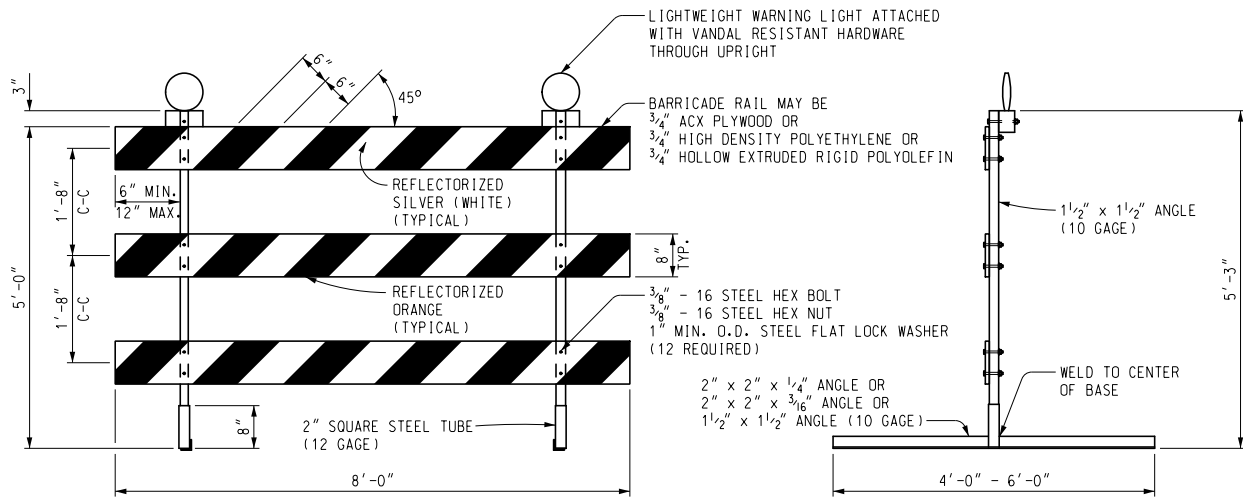
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FRONT ELEVATION

SIDE VIEW

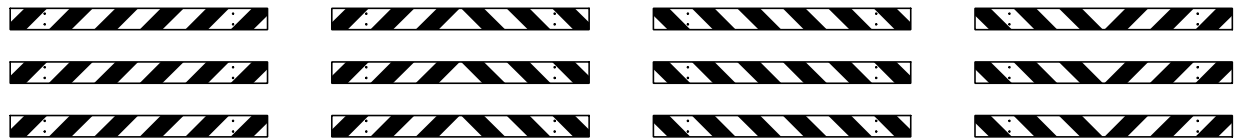
PERFORATED SQUARE STEEL TUBE OPTION



FRONT ELEVATION

SIDE VIEW

ANGLE IRON OPTION



LEFT DIRECTIONAL

BI-DIRECTIONAL

RIGHT DIRECTIONAL

CLOSURES

BARRICADE RAIL SHEETING OPTIONS

TYPE III BARRICADES

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm



PREPARED BY
DESIGN DIVISION

DRAWN BY: ECH

CHECKED BY: MWB

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES
ENGINEER OF DEVELOPMENT

APPROVED BY: _____ (SPECIAL DETAIL) DS-50
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

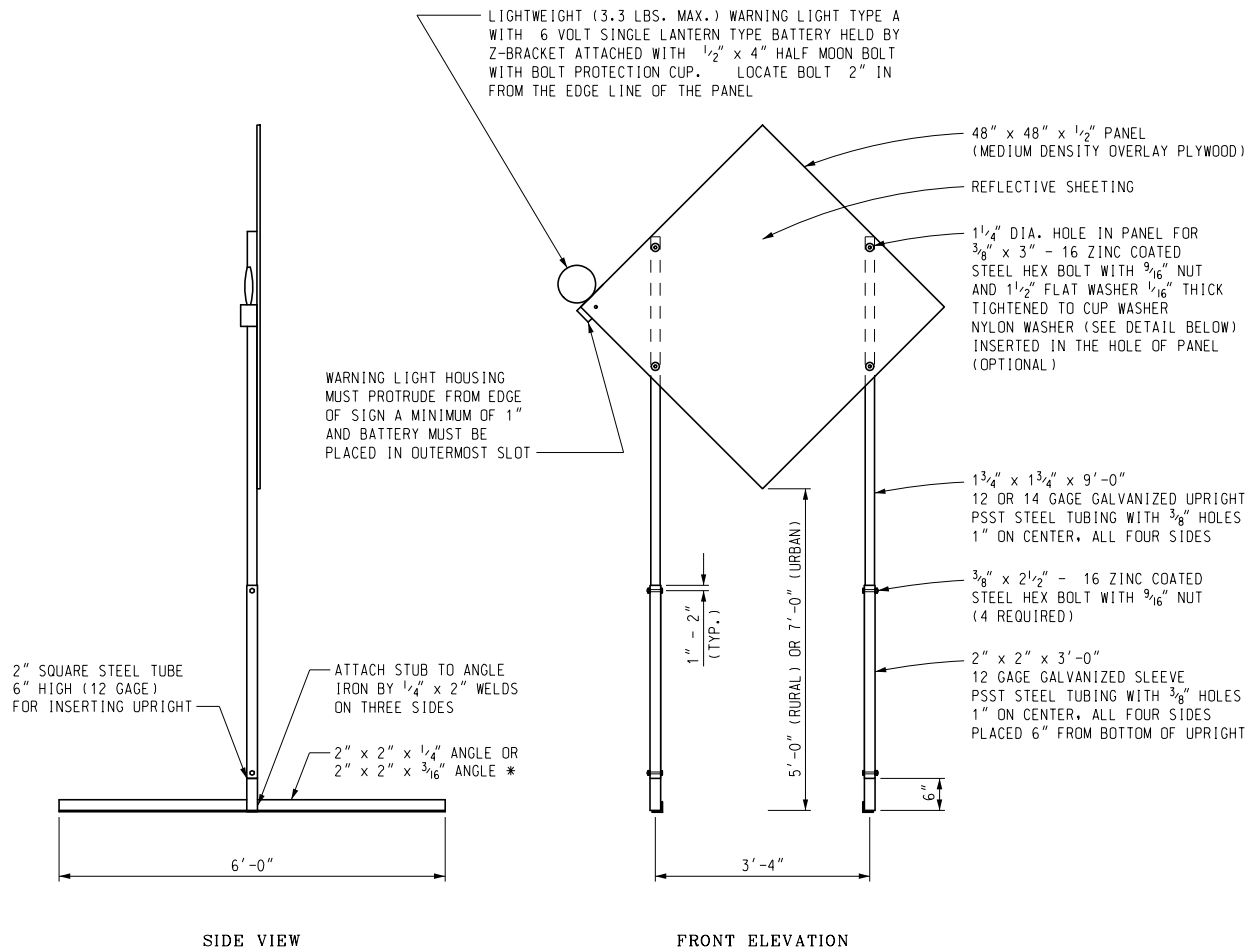
Temporary
Traffic Control Devices

F.H.W.A. APPROVAL

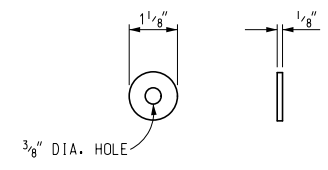
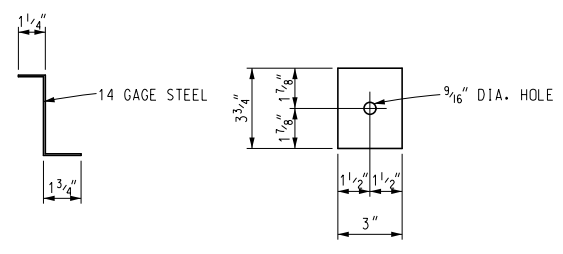
1/18/11
PLAN DATE

WZD-125-E

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TEMPORARY SIGN SUPPORT
 (WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)
 * SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END.
 UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.



Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

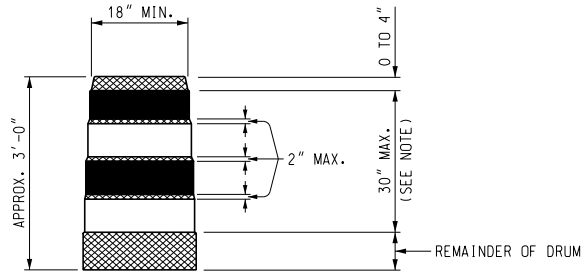
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	DS-51	SPECIAL DETAIL F.H.W.A. APPROVAL	1/18/11 PLAN DATE	WZD-125-E	SHEET 2 OF 3
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- PLASTIC DRUM
- ▲▲▲ PROPOSED TYPE III BARRICADE
- △△△ EXISTING TYPE III BARRICADE

SYMBOLS TO BE USED ON PLANS



- REFLECTORIZED ORANGE
- REFLECTORIZED WHITE
- NON REFLECTORIZED ORANGE

NOTE:
 DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

PLASTIC DRUM

NOTES:

2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARRICADE.

WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT ON TYPE III BARRICADES.

SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.

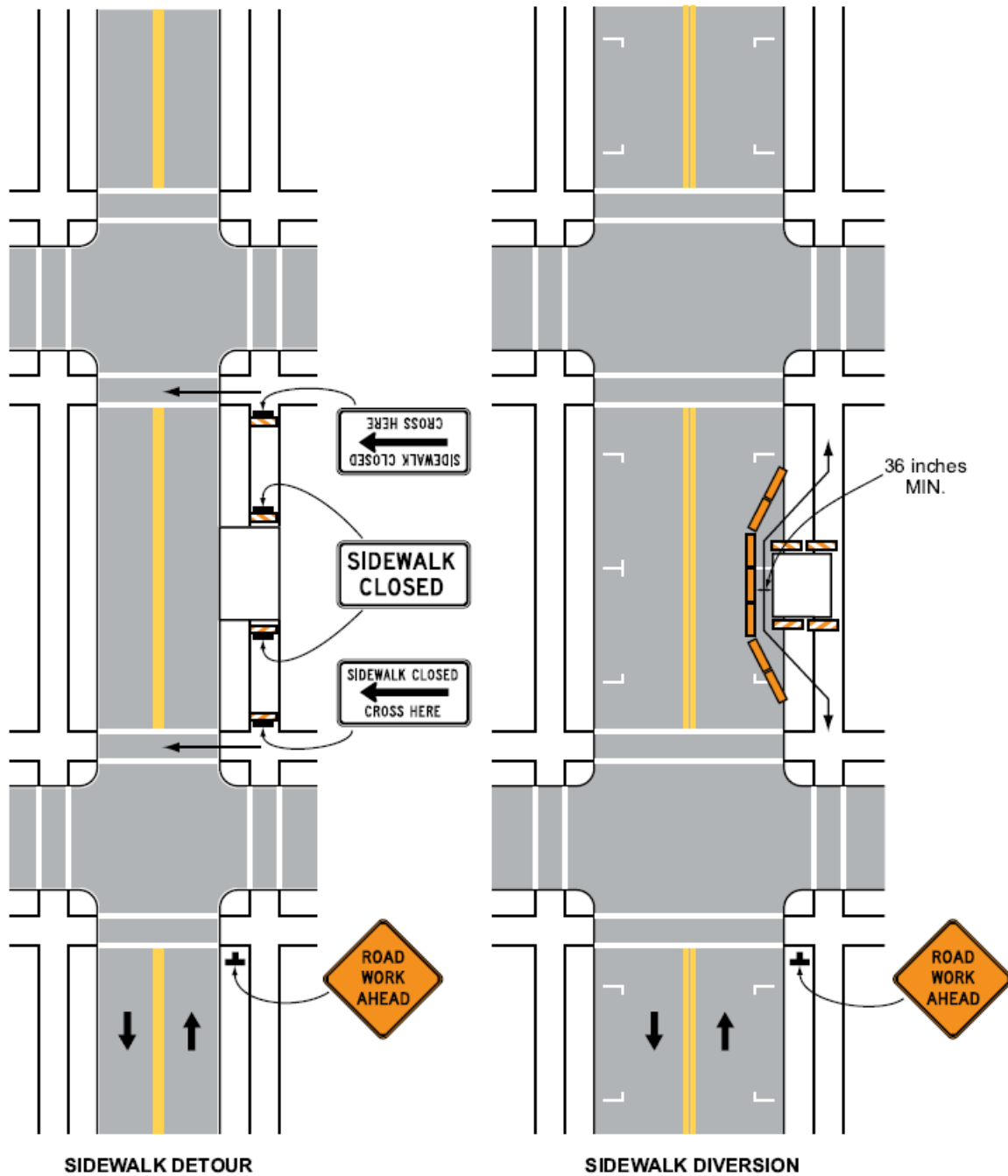
SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

NOT TO SCALE

**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, Max. \$ _____**

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

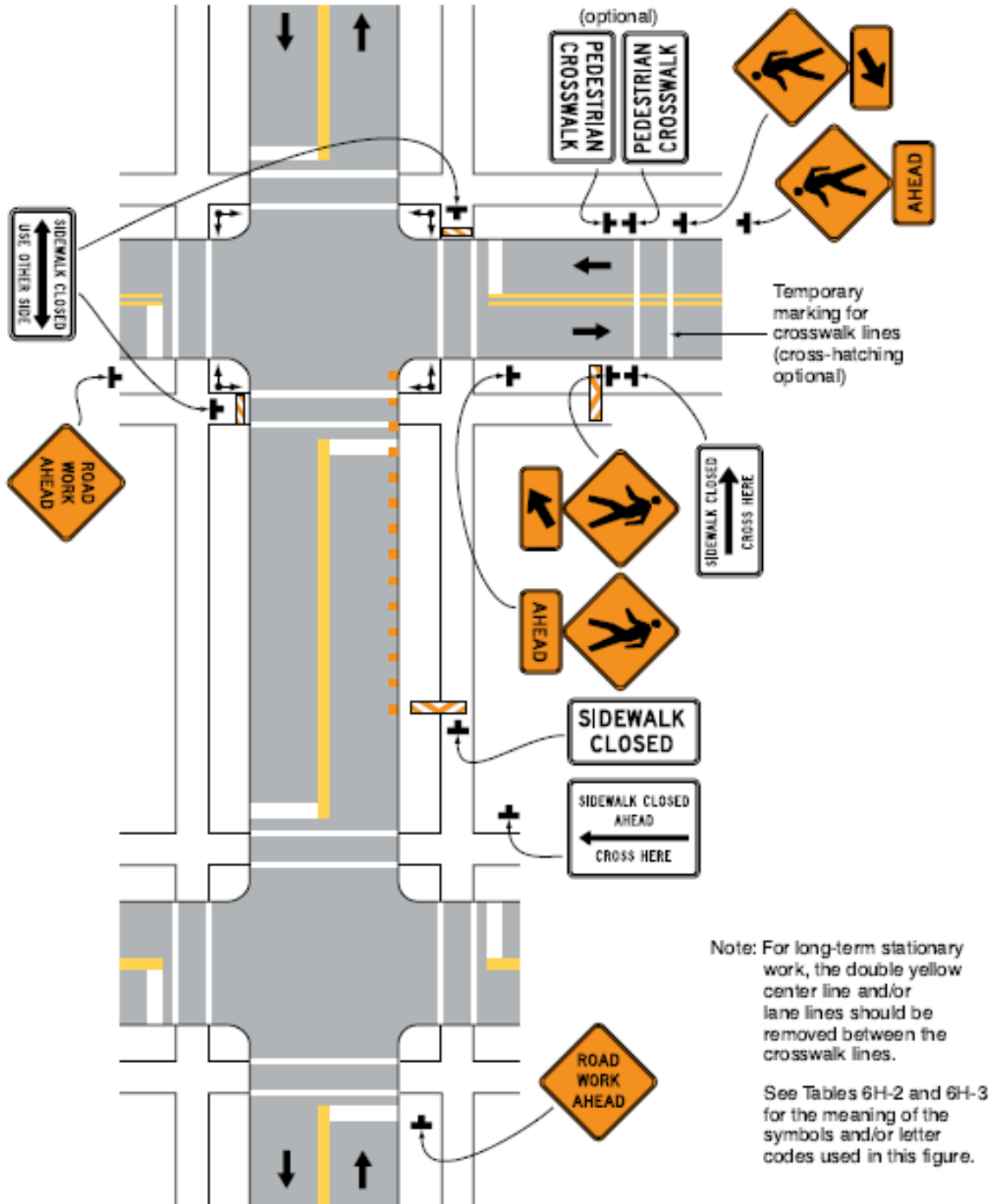


Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
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**DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, Max. \$ _____**

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



Typical Application 29

**DETAILED SPECIFICATION
FOR
ITEM #130 – TREE PROTECTION FENCE**

Description

1. Contractor shall install protective fence at the limits of the construction area as shown on the Plans or as directed by the PSAA.
2. Posts for protective fencing shall be driven a minimum of 42 inches into the earth and be spaced close enough to maintain a taut fabric between posts. At no time shall fence fabric protrude into the pedestrian pathway. If steel bases are used, Contractor shall constantly monitor spacing to ensure fabric remains taut. Fabric shall be attached.
3. The Contractor shall not operate equipment within the tree protection fence of any existing tree without the approval of the PSAA.
4. Construction material, supplies, or equipment shall not be stockpiled or stored within the limits of the tree protection fence.
5. Vehicles and personnel are not permitted within the limits of the tree protection fence.
6. The Contractor shall not attach chains, cables, ropes, nails, or other articles to any tree at any time.
7. Tree roots exposed during construction that are 1½ inches or greater in diameter must be pruned. All pruning operations shall be reviewed and approved by the PSAA.
8. All root pruning shall be performed with sharp tools and shall provide clean cuts that do not unnecessarily damage the remaining bark or root. The Contractor shall not perform any backfilling operations until all root maintenance has been performed.
9. Any trees owned by the City of Ann Arbor or other trees designated to be protected that are damaged due to the Contractor's activities or activities of the Contractor's subcontractors or suppliers, shall be repaired under the direction of the Urban Forestry and Natural Resources Planning Coordinator or by an approved forestry specialist. The costs of these repairs shall be the sole responsibility of the Contractor.
10. Should the Contractor's operations damage a plant's roots to the extent that it must be removed, the Contractor shall either replace the plant with a commensurate number of plants, 2½-inch caliper trees of the species as determined by the City, or compensate the City of Ann Arbor for the cash value of the plant or tree as determined by the Urban Forestry and Natural Resources Planning Coordinator. The City of Ann Arbor shall be solely responsible for determining which compensation method is used.
11. The Urban Forestry and Natural Resources Planning Coordinator shall supervise the replacement of any trees at the sole expense of the Contractor.

**DETAILED SPECIFICATION
FOR
ITEM #130 – TREE PROTECTION FENCE**

12. Contractor shall remove tree protection fence when directed by the PSAA.

Measurement and Payment

1. The completed work as measured for the following pay item shall be paid for at the contract unit price for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Tree Protection Fence	Linear foot

2. “Tree Protection Fence” will be measured in length, by feet of protective fence used, and will be paid for at the contract unit price which shall be payment in full for all labor, materials, and equipment needed to accomplish this work. No additional payment will be made for maintenance or reinstallation of fence during the construction period. No additional payment will be made for repair or replacement of vegetation as noted above.

**DETAILED SPECIFICATION
FOR
ITEM #150 –STRUCTURE, REM PORTION (WINGWALL)
ITEM #151 –CULV, OTHER THAN PIPE, REM**

DESCRIPTION

This work shall consist of furnishing all labor, tools, equipment, and materials to remove portion of wingwall and headwall structures and materials, disposing of removed materials and backfilling the resulting excavated sites in accordance with Section 204 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 204.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

CONSTRUCTION METHOD

Construction methods used shall conform to Section 204.05 and Section 204.06 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Structures, Rem Portion (Wingwall)	Each
Culv, Other than Pipe, Rem	Each

Payment for portions of culvert headwall and wingwall removal includes all labor, material, and equipment required for breaking down, removing, sawing, and disposing of materials and of providing, placing, and compacting backfill for the culvert extensions.

**DETAILED SPECIFICATION
FOR
ITEM #155-156 – CULV END, REM**

DESCRIPTION

This work shall consist of furnishing all labor, tools, equipment, and material to remove, and dispose of off-site, sewers, culverts, and/or drainage structures, in accordance with Section 203 of the 2020 Michigan Department of Transportation Standard Specifications for Construction, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 203.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

CONSTRUCTION METHOD

Construction methods used shall conform to Section 203.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the Contract Unit Price for the following Contract Items:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Culvert, Rem, 12 to 18 inch	Each
Culvert, Rem, 36 inch	Each

Payment for the above items shall include all labor, material and equipment to complete the work of removing sewers and drainage structures of any size or depth as detailed herein for the extension of culverts or drainage pipe with new end sections.

**DETAILED SPECIFICATION
FOR
ITEM #170 – REMOVE HMA PAVEMENT**

DESCRIPTION

This work consists of removing pavement in accordance with Section 204 of the 2020 edition of the MDOT Standard Specifications for Construction, current supplemental MDOT specifications, the Detailed Specifications and the City of Ann Arbor Standard Specifications and Details as shown on the plans and specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 204.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

CONSTRUCTION METHOD

The construction methods used shall conform to Section 204.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

Pavement removal limits shall be as directed by the Engineer. Remove HMA Pavement shall include removal of HMA pavement and underlying base material as necessary to place the proposed cross sections per the detail in the plans. If the existing base material is suitable base material (eg. 21AA), it may remain as the base material specified in the proposed cross sections.

The Contractor shall remove and properly dispose of all excavated material and debris, including all asphalt and concrete. The Contractor shall not stockpile excavated material overnight on, or adjacent to, the site.

Excavated/removal areas shall be adequately protected with barricades or fencing at all times, which will not be paid for separately, but is included in “General Conditions, Max. ___”.

HMA surfaces/pavements shall be cut for removal by the use of saws, jackhammers and/or other methods approved by the Engineer. Backhoe teeth, jackhammers equipped with spike points, and backhoe-mounted wheel cutters shall not be used for cutting the edges of patches, but may be used to break up pavement within patch areas for removal. The edges of patches shall be cut horizontally and vertically straight and uniform (as judged by the Engineer), without damaging adjacent pavement.

Damage to adjacent pavement, subbase, curb, gutter, sidewalk, utility structures, or other site features, due to removal operations shall be repaired by the Contractor, at the Contractor's expense, as directed by the Engineer.

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

**DETAILED SPECIFICATION
FOR
ITEM #170 – REMOVE HMA PAVEMENT**

MEASUREMENT AND PAYMENT

The areas to be removed shall be marked and measured prior to the removal of any material. Measurement shall take place with both the Engineer and the Contractor (or their agents) present. Both parties shall come to an agreement regarding removal quantities prior to the actual removal of HMA pavement. The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Remove HMA Pavement	Square Foot

Payment for Rem HMA Pavement includes all labor, material, and equipment necessary to perform all of the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #171 - REMOVE CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #172 - REMOVE CONCRETE SIDEWALK OR DRIVE - ANY THICKNESS**

DESCRIPTION

This work shall consist of removing concrete curb, gutter, curb and gutter, integral curb, concrete pavement, sidewalk, sidewalk ramps, drive openings, and drives as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2020 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

CONSTRUCTION METHOD

Curb, gutter, curb and gutter, sidewalk, sidewalk ramps, drive openings, and drives shall be replaced within 24 hours of their removal.

The Contractor shall remove concrete curb, gutter, curb & gutter, integral curb, pavement, sidewalk, sidewalk ramps, drive openings, and drives, all regardless of the type and thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals. The Engineer shall approve of all removal limits prior to any removals being performed by the Contractor.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide MDOT Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches as shown on the Plans, as directed by the Engineer, and as marked for removal. The Contractor shall cut steel reinforcement bars as directed by the Engineer at all areas of removal. All saw cutting shall be performed under wet conditions to prevent excessive airborne dust. All resulting slurry and debris shall be cleaned up to the satisfaction of the Engineer.

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

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in the appropriate concrete removal item. Where the Engineer directs the addition of such materials, they shall be paid for separately as the aggregate pay item.

Concrete pavement removals shall be performed in accordance with the MDOT 2020 Standard Specifications. Concrete removal outside the edge-of-metal shall be paid for as the appropriate item of either "Remove Concrete Curb or Curb & Gutter - Any Type", or "Remove Concrete Sidewalk & Drive - Any Thickness".

Excavated/removal areas shall be adequately protected with barricades or fencing at all times, which will not be paid for separately, but is included in "General Conditions, Max. ___".

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

**DETAILED SPECIFICATION
FOR
ITEM #171 - REMOVE CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #172 - REMOVE CONCRETE SIDEWALK OR DRIVE - ANY THICKNESS**

Subbase or subgrade removed without authorization by the Engineer, shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

MEASUREMENT AND PAYMENT

Sidewalk ramp removal shall be measured and paid for as "Remove Concrete Sidewalk and Drive - Any Thickness".

All sawcutting required for removals shall be included in the appropriate item of work, and will not be paid for separately. Payment for saw cutting to create or modify Type M openings, and to allow for the partial removal of existing drives shall be included in the price of the item of work, "Remove Concrete Sidewalk & Drive - Any Thickness", and will not be paid for separately.

Integral curb and concrete pavement for removal shall be included in the price of the item of work "Remove Concrete Sidewalk & Drive - Any Thickness".

Concrete removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Remove Concrete Curb or Curb & Gutter - Any Type	Lineal Foot
Remove Concrete Sidewalk or Drive - Any Thickness	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #280 – BACKFILL, STRUCTURE, CIP**

DESCRIPTION

This work shall consist of furnishing all labor, tools, equipment, and material to backfill completed structures (ie. Headwall and wingwall), in accordance with Section 206 of the 2020 Michigan Department of Transportation Standard Specifications for Construction, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 206.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

CONSTRUCTION METHOD

Construction methods used shall conform to Section 206.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the Contract Unit Price for the following Contract Items:

PAY ITEM

PAY UNIT

Backfill, Structure, CIP.....Cubic Yard

Payment for the above items shall include all labor, material and equipment to complete the work of backfilling headwall and wingwall, in accordance with Section 706.04 of the 2020 Michigan Department of Transportation Standard Specifications for Construction.

**DETAILED SPECIFICATION
FOR
ITEM #281 – SUBSTRUCTURE CONC
ITEM #282 – REINFORCEMENT, STEEL, CULV AND HEADWALL**

DESCRIPTION

This work shall consist of furnishing all labor, tools, equipment, and material to construct the culvert structure (ie. headwall and wingwall), in accordance with Section 706 of the 2020 Michigan Department of Transportation Standard Specifications for Construction, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 706.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

CONSTRUCTION METHOD

Construction methods used shall conform to Section 706.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the Contract Unit Price for the following Contract Items:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Substructure Conc.....	Cubic Yard
Reinforcement, Steel, Culv and Headwall.....	Pounds

Payment for the above items shall include all labor, material and equipment to construct the headwall and wingwall, footings, and other associated concrete with the culvert end structure being cast in place, in accordance with Section 706.04 of the 2020 Michigan Department of Transportation Standard Specifications for Construction.

**DETAILED SPECIFICATION
FOR
ITEM #310-312 – CULV. END SECTION
ITEM #320-323 - CULVERTS**

DESCRIPTION

This work shall consist of constructing Culverts in accordance with Section 401 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 401.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

CONSTRUCTION METHOD

The construction methods used shall conform to Section 401.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Culvert, End Section, ___ inch	Each
Culvert, CI ___, ___ inch	Foot

Payment includes all labor, material, and equipment necessary for furnishing and installing culvert pipe extensions in open cut trench, and shall include, but is not limited to, all excavation, sheeting, bracing, shoring, dewatering, and backfilling; disposal of excess excavated material; protection of existing improvements; sand backfill; stone pipe bedding; cleanup; and all other items necessary to complete the job, whether specifically mentioned or implied.

**DETAILED SPECIFICATION
FOR
ITEM #510 - SIDEWALK STATION GRADING
ITEM #511 - SIDEWALK STATION GRADING, RAILROAD ROW**

DESCRIPTION

Remove miscellaneous structures and materials and complete all earthwork required to construct the proposed cross sections within the limits shown on the plans or stated in this special provision. All lines and grades will be as shown on the plans and as directed by the Engineer. Complete this work according to the MDOT 2020 Standard Specifications for Construction and this Detailed Specification.

MATERIALS

Furnish and place required subbase and embankment material conforming to the MDOT 2020 Standard Specifications for Construction as necessary to achieve the required typical cross sections. Excavated material, if suitable, may be used as embankment material as approved by the Engineer.

CONSTRUCTION METHOD

Complete this work according to applicable sections of the Standard Specifications for Construction. Sidewalk Station Grading includes, but is not limited to, the following work:

1. Strip and stockpile topsoil for use in turf establishment.
2. Furnish, place and compact additional material.
3. Clearing, including trees less than 8 inches in diameter.
4. Remove rocks or boulders less than 0.5 cubic yards in volume.
5. Remove and relocate mailbox posts and mailboxes.
6. Sawcut existing pavement.
7. Match drive and approach grades to new pavement grades.
8. Remove miscellaneous structures and materials.
9. Dispose of excess and unsuitable material according to Section 205.
10. Place embankment and reshape to proposed grades.
11. Excavate material to a depth necessary for construction.
12. Place embankment to a thickness necessary for construction.
13. Excavate for subbase material.
14. Remove existing signage.

The Contractor shall excavate, cut, remove stumps, remove brush, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact subgrade material as needed to achieve the typical cross sections, including all necessary grading at elevation changes for new concrete items; repaired or

**DETAILED SPECIFICATION
FOR
ITEM #510 - SIDEWALK STATION GRADING
ITEM #511 - SIDEWALK STATION GRADING, RAILROAD ROW**

replaced concrete items to their new specified/directed elevations/locations, and at locations where existing concrete items or pavements are to be removed and turf is to be established in its place.

Subbase or subgrade removed without authorization by the Engineer, shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

MEASUREMENT AND PAYMENT

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Sidewalk Station Grading	Station
Sidewalk Station Grading, Railroad ROW	Station

Sidewalk Station Grading, _____ includes all labor, equipment and materials necessary to complete the work as described and will be measured by length in stations along the sidewalk stationing as specified on the plans.

**DETAILED SPECIFICATION
FOR
ITEM #520 - SUBGRADE UNDERCUTTING TYPE II**

DESCRIPTION

This work includes removal of unsuitable granular base, subbase, or clay material(s) to a depth of 4-inches, and installing 4-inches of MDOT Class II granular base material for sidewalk, sidewalk ramps, and drive approaches on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2020 edition of the MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL

The materials used for this work shall be Class II granular base material in accordance with Section 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

CONSTRUCTION METHOD

At any time after topsoil and/or other materials have been removed to subgrade elevation; the Engineer may inspect the grade to determine the need for, and the limits of, undercuts. After undercut areas are excavated to a depth of 4-inches, the areas shall be trimmed, shaped, evenly graded and recompacted to not less than 95% of the soils maximum unit weight as determined by the AASHTO T-180 test. The Contractor shall properly dispose of all excess materials.

The Contractor is solely responsible for the maintenance and protection of the grade. Further, any damage to the grade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or his/her subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the grade. The Contractor shall maintain the base, subbase and subgrade in a smooth, well drained condition at all times.

Subgrade Undercutting shall be backfilled with 4-inches of MDOT Class II granular backfill. The backfill material shall be compacted to not less than 95% of its maximum unit weight as determined by the AASHTO T-180 test.

Granular backfill shall not be placed if, in the opinion of the Engineer, there are any indications that they may become frozen before the specified densities are obtained. Granular backfill shall not be placed on a frozen base, subbase or subgrade.

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

MEASUREMENT AND PAYMENT

The completed work, including subgrade undercutting and placement of granular backfill will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

PAY ITEM

PAY UNIT

Subgrade Undercutting Type II

Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #521 - SAND SUBBASE COURSE, CLASS II – C.I.P.
ITEM #522 - 21AA LIMESTONE – C.I.P.**

DESCRIPTION

This work shall consist of constructing an aggregate subbase or base course on an existing aggregate surface, or on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2020 edition of the MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL

The materials used for this work shall be MDOT 21AA and Class II granular material in accordance with Section 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

CONSTRUCTION METHOD

Sand or aggregate courses shall not be placed if, in the opinion of the Engineer, there are any indications that they may become frozen before their specified densities are obtained.

Sand or aggregate courses shall not be placed on a frozen base, subbase or subgrade.

The Contractor shall not use rubber-tired equipment on the grade, when its use causes, or may cause, in the opinion of the Engineer, damage to the grade. The Contractor shall conduct his/her operation(s), and provide all necessary equipment, to insure the satisfactory completion of the work without damaging the grade. This includes the transporting, stockpiling, rehandling, and movement of materials over additional distances, in lieu of driving on an unprotected, or partially unprotected, grade.

The Contractor is solely responsible for the maintenance and protection of the grade. Further, any damage to the grade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or his/her subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the grade.

The Contractor shall shape the base, subbase and subgrade to the elevations, crowns, and grades as specified on the Plans and as directed by the Engineer. This may include regrading the subbase to provide different crown grades than those existing prior to the construction.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Contractor shall maintain the base, subbase and subgrade in a smooth, well drained condition at all times.

Sand and aggregate courses shall be placed in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer. The loose measure of any layer shall not be more than 9-inches or less than 4-inches.

Sand subbase shall be compacted to not less than 95% of their respective maximum unit weights, as determined by the AASHTO T-180 test.

Aggregate base courses shall be compacted to not less than 98% of their respective maximum unit weights, as determined by the AASHTO T-180 test.

**DETAILED SPECIFICATION
FOR
ITEM #521 - SAND SUBBASE COURSE, CLASS II – C.I.P.
ITEM #522 - 21AA LIMESTONE – C.I.P.**

All granular materials shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material.

Manholes, valve boxes, inlet structures and curbs shall be protected from damage. Manholes & inlet structures shall be continuously cleaned of construction debris and properly covered at all times during the construction. Upon completion of each day's work, manholes, water valve boxes, inlets and catch basins shall be thoroughly cleaned of all extraneous material.

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

MEASUREMENT AND PAYMENT

Where granular materials are used as base, as subbase, or as fill for excavations in Sidewalk Station Grading areas, items of work "Aggregate Base Course, 21AA -C.I.P." and "Sand Subbase Course, CL II - C.I.P." shall be measured and paid accordingly.

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Sand Subbase Course, Class II - C.I.P.	Cubic Yard
21AA Limestone - C.I.P.	Cubic Yard

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #525 - MAINTENANCE GRAVEL

DESCRIPTION

This work shall consist of furnishing and placing Maintenance Gravel in accordance with Section 306 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

MATERIALS

The materials used for this work shall conform to Subsection 306.02 of the Michigan Department of Transportation 2020 Standard Specifications for Construction, except as specified herein.

Aggregate for Maintenance Gravel shall be 21AA Limestone in accordance with Section 902 of the Michigan Department of Transportation 2020 Standard Specifications for Construction.

Measurement for maintenance gravel will be determined by certified delivery tickets submitted to the Engineer or his duly authorized representative on the job site at the time of delivery. Delivery tickets submitted after the delivery will not be accepted for payment. Stockpiled maintenance aggregate shall be kept separate from other aggregate materials. The delivery tickets shall indicate the scale weight of the material, including chemical additives and moisture content.

For material having a moisture content in excess of six (6) percent, the excess over six (6) percent will be deducted from the scale weight of the material when the moisture content is six (6) percent. Material placed to conform to the area and depth specified on the Plans or as determined by the Engineer will be paid for at the tonnage basis. If the area or depth of the maintenance aggregate is increased to accommodate the Contractor's operation, the additional material installed beyond the area and depth specified on the Plans or as determined by the Engineer, will be at the Contractor's expense.

CONSTRUCTION METHOD

The construction methods used shall conform to Section 306.03 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as specified herein.

MEASUREMENT AND PAYMENT

The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Maintenance Gravel.....	Ton

Payment for Maintenance Gravel for temporary walks, drives and roads shall include all labor, material, and equipment required for furnishing and installing maintenance gravel as shown on the plans or determined by the ENGINEER. Payment shall include all construction, excavation, protection of existing improvements, and for all items necessary to complete the job, whether specifically mentioned or implied.

**DETAILED SPECIFICATION
FOR
ITEM #530 - HANDPATCHING**

DESCRIPTION

This work shall consist of constructing HMA pavement in accordance with Division 5 and Section 904 of the 2020 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT

General

The HMA mixtures to be used for this work shall be as follows:

<u>WORK ITEM</u>	<u>MDOT HMA MIXTURE #</u>
Handpatching	4E1

Binders for mixes shall be PG 64-28, as directed by Engineer. These shall meet the requirements specified in Section 904 of the 2020 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

The Aggregate Wear Index (AWI) number is 220. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

The use of Reclaimed Asphalt Pavement (RAP) in HMA mixtures shall be in accordance with Section 501.02.A.2 of the 2020 edition of the MDOT Standard Specifications, and the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHODS

All concrete work shall be completed prior to placing HMA mixtures.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor and jackhammer available during all paving operations.

Prior to placing the bond coat, the Contractor shall remove all vegetation (within the area to be paved), shall thoroughly clean all joints & cracks in the existing pavement (and any gutter to be overlaid) with compressed air and/or vacuum-type street cleaning equipment to remove all dirt and debris to a depth of at least 1-inch, and shall thoroughly clean the entire surface to be paved, with a Vac-All or similar vacuum-type street cleaning equipment.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.10 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care to avoid covering surfaces which are not to be paved. If work after October 15, 2022 is allowed by the Engineer, the SS-1h bond coat shall not be diluted by more than 25%.

The Contractor shall place HMA wedges using the leveling or base mixture specified herein, as directed by the Engineer, prior to placing the top course. Such wedging shall be measured and paid for at the respective unit price of the appropriate HMA Pavement item.

Construction of butt joints, where directed by the Engineer, shall be measured and paid for as "HMA Surface Remove".

The Contractor shall schedule the paving operation to avoid longitudinal cold joints.

Handpatching shall be placed in 0-inch to 4-inch lifts.

All specified HMA thickness dimensions are compacted-in-place.

The Contractor shall construct the pavement courses to provide the final cross-slopes (crowns) specified by the Engineer.

The Contractor shall construct feather joints, and shall feather the top course at structures, in drive approaches, and

**DETAILED SPECIFICATION
FOR
ITEM #530 - HANDPATCHING**

at intersection joints, as directed by the Engineer. Feather joints shall vary the thickness of the asphalt from 0.0-inches to the required full paving thickness (approximately 2 inches) over a 5-foot to 15-foot distance, or as directed by the Engineer. The Contractor shall rake all large aggregates out of the HMA mixture in feather joints, prior to compaction.

The Contractor shall provide a minimum of two rakers during the placement of all top courses. Further, the Contractor shall provide, when directed by the Engineer, a second "Break-Down" roller in order to achieve the specified asphalt densities.

The Contractor shall provide a minimum of 24-hour notice to the Engineer prior to paving, and shall obtain a "Permit To Pave" from the Engineer in advance of scheduling paving.

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or contaminated sections of pavement, including sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer.

During the placement of all courses, the speed of the paving machine(s) shall not exceed 50-feet per minute.

The Contractor shall furnish and operate enough materials and equipment so as to keep the paving machine(s) moving continuously at all times. Failure to do so shall be cause for the suspension of the paving operation until the Contractor can demonstrate to the satisfaction of the Engineer, that sufficient resources have been dedicated to perform the work in accordance with the specifications.

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

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

MEASUREMENT AND PAYMENT

Measurement of this HMA paving item shall be by the ton, in place. Unused portions of material loads shall be returned to the plant and re-weighed, and the corrected weight slip shall be provided to the Engineer. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, and air compressors shall be included in the bid prices for these items of work or in the item of work "General Conditions, Max \$ ____."

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

PAY ITEM

Handpatching

PAY UNIT

Ton

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #540 - 4-INCH SIDEWALK OR RAMP
ITEM #541 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #542 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY
ITEM #543 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #544 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY**

DESCRIPTION

This work shall consist of constructing concrete items including sidewalks and drive approaches, of regular and high-early concrete, in accordance with Sections 602, 603, 801, 802, and 803 of the 2020 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

MATERIALS

Concrete mixtures shall be as follows (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the referenced sections of the MDOT Standard Specifications:

<u>Concrete Item</u>	<u>Concrete Mixture</u>	<u>MDOT Section</u>
4" or 6" or 8" Sidewalk/Ramp/Drive	3500	1004
6" or 8" Sidewalk/Ramp/Drive - High-Early	P-NC	1006

CONSTRUCTION METHODS

General

Sidewalk, sidewalk ramps, and drives shall be replaced within 24 hours of their removal.

The Contractor is responsible to construct all sidewalks, sidewalk ramps, and all other concrete items within ADAAG (Americans with Disabilities Act Accessibility Guidelines) compliance. All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Detail R-28-J (or version in place at time of the bid letting). The Engineer shall approve of all proposed grades prior to any removals and/or placement of concrete.

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times, a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.

The subbase and adjacent concrete shall be sufficiently wet-down with water prior to placing concrete, to prevent water loss from the new concrete, and to form a better bond between old and new concrete. If a cold-joint becomes necessary, (the) existing concrete surface(s) shall be cleaned with compressed air to expose the aggregate in the concrete.

All concrete items shall be placed with the use for rigid forms, except along edges where the new concrete abuts an existing sidewalk or pavement. Any concrete placed without the use of forms shall be removed and replaced at the Contractor's expense. Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

**DETAILED SPECIFICATION
FOR
ITEM #540 - 4-INCH SIDEWALK OR RAMP
ITEM #541 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #542 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY
ITEM #543 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #544 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY**

Prior to compacting backfill in front of curb and gutter, the back of curb shall be backfilled with approved material and compacted by mechanical means to 95% of the material's maximum unit weight.

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

All concrete items shall be constructed such that positive drainage is maintained. Any areas that exhibit ponding water shall be removed and replaced to the extent necessary to correct the problem as directed by the Engineer, at the Contractor's sole expense.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement of seed and topsoil in all turf restoration locations and at locations where concrete items are removed and turf is to be established, all in accordance with the Detailed Specification for "Restoration".

Restoration work associated with the items of work described in this Detailed Specification shall include the area between the back of the curb (or edge of pavement) to the edge of the sidewalk, as well as the area within 12 inches of the back of the sidewalk.

All restoration work and materials shall be in accordance with the City Standard Specifications.

Contraction Joints in Sidewalk

Contraction joints shall be placed at 5-foot intervals and may be tooled or sawed. The method of forming joints and spacing shall be approved by the Engineer prior to construction.

Expansion Joints in Sidewalks

¾-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

½-inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

MEASUREMENT AND PAYMENT

No additional compensation will be paid for the construction of concrete items adjacent to existing concrete curb, gutter, pavement, or any other pavement or surface feature(s).

Restoration work within the limits described above will not be paid for separately, but shall be included in the appropriate associated items of work.

**DETAILED SPECIFICATION
FOR
ITEM #540 - 4-INCH SIDEWALK OR RAMP
ITEM #541 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #542 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY
ITEM #543 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #544 - 8-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY**

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

<u>PAY ITEMS</u>	<u>PAY UNIT</u>
4-Inch Sidewalk or Ramp	Square Foot
6-Inch Drive Approach, Ramp or Sidewalk	Square Foot
6-Inch Drive Approach, Ramp or Sidewalk - High Early	Square Foot
8-Inch Drive Approach, Ramp or Sidewalk	Square Foot
8-Inch Drive Approach, Ramp or Sidewalk - High Early	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #560 - CONCRETE CURB AND GUTTER
ITEM #561 - CONCRETE CURB RAMP OPENING**

DESCRIPTION

This work shall consist of constructing concrete curb and gutter and concrete curb openings in accordance with Section 802 of the MDOT 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

MATERIALS

The materials shall meet the requirements as specified in Sections 802.02 803.02 of the 2020 MDOT Standard Specifications and as specified herein:

Curb and Gutter, Conc, AA Det ____, Modified and Curb Ramp Opening, Conc as specified herein shall be Grade 3500 Concrete per Section 1004 of the 2020 MDOT Standard Specifications. The Contractor may elect to add GGBFS to this mixture in accordance with the requirements of the contract documents. No additional payment will be made for concrete mixtures containing GGBFS.

It shall be the Contractor's sole responsibility to propose specific concrete mix designs which meet the requirements of this Detailed Specification and the contract documents.

CONSTRUCTION METHOD

All curb ramp openings shall be constructed in accordance with MDOT Standard Detail R-28-J (latest edition) for "Curb Ramp and Detectable Warning Details"

Expansion joints of the thickness shown on the details shall be placed as directed by the Engineer.

The concrete items being placed shall not be opened to construction or vehicular traffic until such time as the concrete has reached the required flexural strength. The Contractor shall cast cylinders in accordance with Section 1002, and as approved by the Engineer, and obtain concrete flexural strength in accordance with the requirements of Section 104.11, Table 104-1. Cylinders cast for open to traffic determinations shall be cured in the same manner and environment as the concrete items which they represent.

Flexural strength cylinders shall be tested (broken) with a device meeting the approval of the Engineer and be in a state of good repair and shall be calibrated by an accredited testing laboratory or engineering company within a period of two years from the date of the test being performed.

MEASUREMENT AND PAYMENT

The completed work as measured shall be paid for at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Curb and Gutter, Conc, AA Det ____, Modified.....	Foot
Curb Ramp Opening, Con,	Foot

The pay items will be measured in length by the foot and will be payment in full for all labor, equipment and material needed to properly complete this work.

**DETAILED SPECIFICATION
FOR
ITEM #570 - DETECTABLE WARNING, CAST IN PLACE**

DESCRIPTION

This work shall consist of furnishing and installing cast in place detectable warning units in compliance with the Americans with Disability Act (ADA). All work shall be in accordance with MDOT Standard Detail R-28-J (or version in place at time of the bid letting).

MATERIALS

The detectable warning tiles shall be colored as Federal Number 22144 (variously referred to as “Clay Red” or “Brick Red”). The detectable warning tiles shall meet the following material properties, dimensions, and tolerances using the most current test methods:

1. Water Absorption: Not to exceed 0.35% when tested in accordance with ASTM-D570
2. Slip Resistance: 0.80 minimum combined wet/dry static coefficient of friction on top domes and field area, when tested in accordance with ASTM C1028.
3. Compressive Strength: 18,000 psi minimum, when tested in accordance with ASTM D695.
4. Tensile Strength: 10,000 psi minimum, when tested in accordance with ASTM D638.
5. Flexural Strength: 24,000 psi minimum, when tested in accordance with ASTM D790.
6. Chemical Stain Resistance: No reaction to 1% hydrochloric acid, urine, chewing gum, soap solution, motor oil, bleach, calcium chloride, when tested in accordance with ASTM D543 or D1308.
7. Wear Depth: 300 minimum, when tested in accordance with ASTM C501.
8. Flame Spread: 25 maximum, when tested in accordance with ASTM E84.
9. Gardner Impact: 50 in.-lbs. minimum, when tested in accordance with Geometry “GE” of ASTM D5420.
10. Accelerated Weathering of Tile when tested by ASTM-G155 or ASTM G151 shall exhibit the following result- $\Delta E < 6.0$ as well as no deterioration, fading or chalking of surface when exposed to 3000 hours minimum exposure.
11. Wheel Loading: The cast in place tile shall be mounted on a concrete platform with a ½” airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8,000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs using AASHTO-HB17 single sheet HS20-44 loading “Standard Specifications for Highways and Bridges.”
12. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B117 not to show any deterioration or other defects after 100 hours of exposure

**DETAILED SPECIFICATION
FOR
ITEM #570 - DETECTABLE WARNING, CAST IN PLACE**

CONSTRUCTION METHODS

Installer's Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for this Project.

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28-J (or version in place at the time of bidding), or other project requirements.

MEASUREMENT AND PAYMENT

The completed work as measured for this item of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Item:

PAY ITEM

PAY UNIT

Detectable Warning, Cast in Place

Square Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #580 –STRUCTURE COVER, ADJUST
ITEM #581 – CURB BOX, ADJUST**

Description

1. Manhole covers, water valve boxes and all other public utility underground access or control point covers shall be adjusted to conform to the finished surface section and elevation, including excavation, backfill, compaction and patching.
2. After the removal of the casting, the structure's opening shall be covered by a steel plate. The plate shall be properly placed in order to avoid any slippage due to traffic or construction machinery movements. The opening shall be covered to prevent construction debris from entering the structure. The plate shall be covered with MDOT 21AA gravel to existing surface elevation or as directed by PSAA. Steel plates shall be sufficiently strong and thick enough to carry the traffic and construction equipment without any deflection. Steel plates shall also be pegged as shown on the Plans and Details in order to prevent their shifting and/or moving. Steel plates are the property of the Contractor and shall be removed by the Contractor upon completion of the work.
3. The PSAA shall be given the opportunity by the Contractor to witness all survey monuments prior to their being disturbed and/or adjusted.
4. Prior to placement of Portland cement concrete pavement, all structures shall have their covers and castings removed, and the structures covered by a steel plate. This plate will be removed, and the structure adjusted after the paving machine has passed over it and before the concrete pavement has begun to set.
5. For bituminous pavement, all covers shall be adjusted to grade after the initial leveling, base course(s), and/or patching course has been placed, but before the placement of the wearing course. Prior to the leveling or base course(s) being placed, the structures shall have their covers and castings removed and the structures covered by a steel plate. This plate will be removed, and the structure adjusted after the completion of all base and leveling courses.
6. The frame and cover shall be set in MDOT P-NC concrete and checked by using a 10-foot straight edge parallel with the pavement centerline.
7. All structures are to be adjusted to a level that results in their surface being flush with the finished grade. Failure to meet these conditions will result in the readjustment of the structure and finish patching of the area as directed by the PSAA at the Contractor's expense.
8. Frames shall be pointed with mortar on the interior of the structure to a smooth brushed finish.
9. All non-public utility structures (Electric, Gas, Telephone, Cable TV, etc.) shall be adjusted by the Utility Company or their contractor. It is the sole responsibility of the Contractor to give

**DETAILED SPECIFICATION
FOR
ITEM #580 –STRUCTURE COVER, ADJUST
ITEM #581 – CURB BOX, ADJUST**

adequate notice to the Utility Company and to arrange for and coordinate any adjustment of structures or valves by the Utility Company.

10. The Contractor shall replace frames and covers as directed by the PSAA.
11. All salvaged frames and covers (of any type) shall be returned by the Contractor to the City's Public Works yard within two days from the date of their removal.

Measurement and Payment

1. Payment for “Structure Cover, Adjust” and “Curb Box, Adjust” shall include all labor, material and equipment necessary to raise the existing frame and cover not more than 6 inches or lower them not more than 12 inches. Adjusting covers includes sawcutting, removing and replacing pavement; and furnishing, installing and compacting granular backfill material.
2. The completed work as measured for the following pay items shall be paid for at the contract unit prices for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Drainage Structure Cover, Adjust	Each
Curb Box, Adjust.....	Each

3. The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #701 - EROSION CONTROL, SILT FENCE
ITEM #702 – EROSION CONTROL, INLET PROTECTION**

DESCRIPTION

The Contractor shall furnish, place, maintain, and remove soil erosion and sedimentation control measures, including but not limited to, silt fence and fabric filter protection at all drainage structures, all in accordance with all applicable City (and other governmental agencies) codes and standards, as directed by the Engineer, as detailed in the Standard Specifications, and as shown on the Plans.

This work consists of installing and maintaining inlet filters and silt fence in accordance with Section 208 of the 2020 Michigan Department of Transportation Standard Specifications for Construction and as shown on the plans. Filters in existing and proposed inlets, as well as silt fence downstream of construction area, shall be installed in order to minimize the erosion of soil and the sedimentation of water courses. The related work includes the installation, maintenance, and removal of the filters and fence, cleaning as required during the performance of the project work, removing and disposing of accumulated sediment, and replacement of filters if required by the Engineer so as to provide a properly working inlet filter and a well-drained site.

MATERIALS

The inlet protection filters shall be in accordance with the REGULAR FLOW SILTSACK® manufactured by ACF Environmental (800) 448-3636; FLEXSTORM® Style FX manufactured by Advanced Drainage Systems, Inc. (800) 821-6710; CATCH-ALL® manufactured by Price & Company (866) 960-4300, SLOT GUARD® manufactured by Ertec Environmental Systems (866) 521-0724, or Engineer approved equal.

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

METHODS OF CONSTRUCTION

The Contractor shall install, maintain, clean, and re-install and/or replace inlet filters and silt fence in accordance with the manufacturer’s specifications and as directed by the Engineer. The Contractor shall dispose of debris off-site.

MEASUREMENT AND PAYMENT

Soil erosion and sedimentation control items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Erosion Control, Silt Fence	Foot
Erosion Control, Inlet Protection	Each

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #703 - RIPRAP, PLAIN

DESCRIPTION

This work consists of furnishing and placing plain riprap as detailed in the plans, including placing riprap under existing superstructure elements. The work shall be completed in accordance with Section 813 of the Michigan Department of Transportation 2020 Standard Specifications for Construction except as modified herein.

MATERIALS

The riprap shall be an Engineer-approved, consistent, gray-colored, natural stone, or crushed limestone. The Contractor shall provide a sample of the stone to the Engineer for review. Broken concrete is not acceptable.

CONSTRUCTION

Place riprap in accordance with subsection 813.03.E to the elevations, thickness and lateral limits shown on the plans. Clear brush, trees, stumps and debris from areas to be protected by riprap. Shape all grades to the required cross section, including excavation for toe and header plan details. Place Geotextile liner, as shown on the plans, on the prepared grades. Ensure that the riprap installation does not damage the geotextile liner.

When placing riprap under structures, ensure there is no damage to the existing substructure and superstructure elements. The Contractor is solely responsible for determining and utilizing suitable methods of preparing the area for riprap placement and placing the riprap such that the material is placed in accordance with the requirements of the plans and specifications. The use of hand methods to prepare areas for riprap placement and placing riprap may be necessary and/or required. Repair any damage to the existing structure resulting from the placement of riprap under structures as directed by the Engineer and at no cost additional to the City.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the contract unit price for the following contract item (pay item):

PAY ITEM

PAY UNIT

Riprap, Plain Square Yard

“Riprap, Plain” shall be measured in place by the square yard and include all labor, materials, and equipment required to clear and prepare grades, furnish and place geotextile liner, and to place the riprap as described specified.

**DETAILED SPECIFICATION
FOR
ITEM #800 - RESTORATION**

DESCRIPTION

This item of work shall conform to Item No. 882, "Seeding & Mulching" in Division IX, Section 6 Landscaping & Restoration Items of the Public Services Area Standard Specifications, except as specified herein.

This work shall include the removal of all surplus materials from the site including; but not limited to; tools, dirt, rubbish, construction debris, and excess excavated material. This work shall also include the restoration of all existing lawn areas, road surfaces, culverts, drives, and sidewalks disturbed by the work. This work includes placing topsoil, fertilizer, seeding, and furnishing and installing mulch blankets on all disturbed areas as approved by the Engineer. Mulch blankets are required on all seeded areas.

MATERIALS

The materials shall meet the requirements specified in the MDOT 2020 Standard Specifications as designated, as specified herein, and as approved by the Engineer:

- Seed shall be TUF (Turf Urban Freeway) seed mixture as described in MDOT Table 816-1.
- Fertilizers shall be a Class A. The percentages by weight shall be 12- 12- 12, or as approved by the Engineer.
- Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances.
- Mulch blankets shall be High Velocity Straw Mulch Blankets as specified in MDOT section 917.
- Topsoil shall be 4 inches furnished as specified in MDOT section 917.

MAINTENANCE AND ACCEPTANCE

It is the responsibility of the Contractor to establish a dense lawn of permanent grasses, free from mounds and depressions prior to final acceptance and payment of this project. Any portion of a seeded area that fails to show a uniform germination shall be reseeded. Such reseeding shall be at the Contractor's expense and shall continue until a dense lawn is established. The Contractor is responsible for restoring all areas disturbed by his construction.

The Contractor shall maintain all lawn areas until they have been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place and continue until final acceptance with the following requirements:

Lawns shall be protected and maintained by watering, mowing, and reseeding as necessary, until the period of time when the final acceptance and payment is made by the Engineer for the project, to establish a uniform, weed-free, stand of the specified grasses. Maintenance includes furnishing and installing additional topsoil, and reseeding all as may be required to correct all settlement and erosion until the date of final acceptance.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.

When the above requirements have been fulfilled, the Engineer will accept the lawn.

**DETAILED SPECIFICATION
FOR
ITEM #800 - RESTORATION**

Cleanup and Restoration must be performed upon the completion of each stage of work, to prevent erosion, and not as one single operation at the completion of the entire project. Restoration work must be performed within one week of the placement of the wearing course for each street.

The Contractor shall restore all disturbed areas to better than or equal to their original condition.

MEASUREMENT AND PAYMENT

Measurement and payment of this item of work shall conform to Item No. 882, "Seeding & Mulching" in Division IX, Section 6 Landscaping & Restoration Items of the Public Services Area Standard Specifications, except as specified herein.

The completed work for "Clean-Up & Restoration, Special" will be paid for on a lump sum (LS) basis. 80% of said lump sum shall be paid upon completion and approval of the site by the Engineer. By May 31st of the year following the completion of the project, the Engineer will inspect the seeded turf to ensure that the end product is well established; weed free, and in a growing and vibrant condition. If the Engineer determines that the restored areas meet the project requirements, the remaining 20% of the lump sum will be paid. If the Engineer determines that the restored areas do not meet the project requirements, the Contractor will continue with any and all measures necessary to meet the project requirements. All costs associated with the remedial measures shall be borne entirely by the Contractor.

Pay Item

Restoration

Pay Unit

Syd

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION
FOR
ITEM #810 –IRRIGATION SYSTEMS, PROTECT AND MAINTAIN**

DESCRIPTION

This work shall consist of all labor, materials, and equipment necessary to investigate, locate, save and protect from damage, ensure continued and proper operation during the performance of the project work, re-establish operation as necessary, and upon completion of all project work, ensure that all existing sprinkler systems located within the project limits, or those affected by the project, are functioning in a satisfactory manner as determined by the Engineer.

CONSTRUCTION

The Contractor shall be aware that properties located within the project limits have underground sprinkler systems that irrigate both private property and portions of the public right-of-way. The irrigation systems have been installed by a variety of private installers and may utilize several different materials and/or suppliers of the various components. Portions of the existing irrigation systems have been installed under paved areas, extend into landscaped islands, or may be required to be located within such areas at the conclusion of the project's construction.

The Contractor shall perform the necessary investigations to determine the precise location of the irrigation systems, and all affected components, prior to the commencement of construction operations, determine all impacts to the systems that will result pursuant to the project's construction, and take the needed actions to ensure that the sprinkler systems will remain functional during the project's construction, and will be re-established in such a manner at appropriate intermediate and final project milestones, that the original functionality of the system is maintained to the greatest extent possible.

The Contractor shall contact all property owners prior to the commencement of the work in order to determine the impacts to their irrigation systems and coordinate the project's work with them to ensure satisfactory operation of the irrigation systems during construction.

All work shall be approved by the Engineer and the affected property owner(s) at the conclusion of the project's work.

This is an allowance type item. This allowance is not for solving problems caused by the Contractor's own neglect, errors, omissions or other deeds of the Contractor's own fault. Protecting existing irrigation systems where it is not necessary to remove it to complete the work is included in the contract unit price for the pay item General Conditions, Maximum \$____.

The Contractor is required to present a detailed scope of work and detailed costs for any Work contemplated under the irrigation system allowance to the Engineer. No Work is to begin until scope and costs have been finalized and approval by the Engineer in writing.

Thereafter, if the approved price for this work is more or less than the lump sum allowance amount of the lump sum in the Contract, the Contract Lump Sum Price shall be adjusted accordingly by Change Order. The payment shall be made on the basis of the actual approved amount without additional charge or markups for overhead, insurances, bonds, or any other incidental expenses. The Contractor shall be responsible for all coordination involved and for the timely completion of the Work to fit his schedule.

**DETAILED SPECIFICATION
FOR
ITEM #810 –IRRIGATION SYSTEMS, PROTECT AND MAINTAIN**

Measurement and Payment

The completed work, as described, will be measured and paid for at the approved price for the following pay item:

PAY ITEM

PAY UNIT

Irrigation System, Protection and Maintenance

Lump Sum

The approved price for this item shall include all labor, material, and equipment costs required to complete the work.

**DETAILED SPECIFICATION
FOR
ITEM #825 – SPLIT RAIL FENCE**

DESCRIPTION

This work shall consist of all equipment, materials and labor necessary to install architectural fencing with treated and composite wood adjacent to the pathway. The work shall be completed according to Sections 808 and 912 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as shown on the plans, and as specified herein.

MATERIALS

All timber and lumber shall be treated and in accordance with Section 912 of the MDOT 2020 Standard Specifications for Construction. Lumber shall be S4S (surfaced four sides) according to ASTM D 245. All lumber sizes are nominal. All lumber shall be stamped by the rating agency, certifications shall also be provided verify the preservative treatment including net retention, pressure process used, and compliance to current standards.

Posts and Rails shall be Western Red Cedar (*Thuja plicata*), Eastern Northern White Cedar (*Thuja occidentalis*), Black Locust (*Robinia pseudoacacia*), or approved equal and commercially available. Both the posts and the rails may vary considerably in width and thickness with specified dimensions being average and approximate only.

All longitudinal splitting shall be by axe, froe or wedge. Cut, torn or rough grain will not be classified as defects. Knots shall not exceed 1/2" at narrowest dimensions and shall be firm and close trimmed by axe or power saw.

Spiral grain shall not exceed 1/4 twist in length. Kinks, bends or sweeps shall not exceed the narrowest dimension from a straight line from center to center.

Outer bark, sap rot, char and other unsightly discolorations will not be permitted but limited heart rot in streaks and pockets as well as rusty colorations due to normal weathering and seasoning shall be permitted. Scars, wounds, splits or seasoning checks shall not exceed 1/4 depth of area affected.

Concrete shall be Grade 3000 per Table 1004-1 and shall be placed as described in Section 1004 both of the MDOT 2020 Standard Specifications for Construction or as directed by the Engineer.

CONSTRUCTION METHOD

Ensure the work is in accordance with Sections 709, 808 and 1004 of the MDOT 2020 Standard Specifications for Construction. Embed posts in a concrete footing as shown on the drawings or as directed by the Engineer. Countersink all wood screws. Screws must not protrude above the deck or railing cap surface.

Posts shall measure approximately 4" by 6" by 6'-0" in length. Minimum girth shall measure 18" between the two mortise openings. Posts shall be embedded 36" into the ground

The distance from the top of the post to the first mortise opening shall be 14" and the distance, center to center, between the mortise openings shall be 18". The mortise opening shall be 1-3/4" wide and approximately 6 1/2" in length. End and corner posts will be required at the appropriate locations.

**DETAILED SPECIFICATION
FOR
ITEM #825 – SPLIT RAIL FENCE**

Fence, Split Rail shall be of 2-rail construction. Rails shall be approximately 2" x 6" x 8' with a minimum girth of 12". Tenon area shall be 3" in length by 1½" in thickness and 5½" in width plus or minus ½".

Protection in Transit. A coat of end sealer must be applied to ends of all wood members as soon as practicable after end trimming. Wood members must be protected until installed.

Field Storage and Handling. If products are stored temporarily at the job site after arrival, wood members must be placed on blocking, well off the ground and be separated by wood blocking so air can circulate around each member. Place water resistance paper over the top but do not use opaque polyethylene. All steel must be Buy America certified.

MEASUREMENT AND PAYMENT

The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Fence, Split Rail.....	Foot

Payment includes all labor, material, and equipment necessary for furnishing and installing the fence including all wood members, hardware and fasteners and appurtenances, and concrete footing for a complete installation and as shown on the plans.

**DETAILED SPECIFICATION
FOR
ITEM #850 - CLEAN-UP & RESTORATION, MAXIMUM \$ _____**

DESCRIPTION

This item of work shall conform to Division IX, Section II, "Clean-Up & Restoration" of the Public Services Area Standard Specifications, except as specified herein.

This work shall include the removal of all surplus materials from the site including; but not limited to; tools, dirt, rubbish, construction debris, and excess excavated material. This work shall also include the restoration of all existing lawn areas, road surfaces, culverts, drives, and sidewalks disturbed by the work.

CONSTRUCTION METHODS

Clean-up and Restoration must be performed upon the completion of each stage of work, to prevent erosion, and not as one single operation at the completion of the entire project. Restoration work must be performed within one week of the placement of the wearing course for each street.

The Contractor shall restore all disturbed areas to better than or equal to their original condition.

MEASUREMENT AND PAYMENT

Measurement and payment for this item of work shall conform to Division IX, Section 2, "Clean-Up & Restoration" of the Public Services Area Standard Specifications except as modified herein.

The completed work for "Clean-Up & Restoration, Max \$ _____" will be paid for on a lump sum (LS) basis. 80% of said lump sum shall be paid upon completion and approval of the site by the Engineer. By May 31st of the year following the completion of the project, the Engineer will inspect the seeded turf to ensure that the end product is well established; weed free, and in a growing and vibrant condition. If the Engineer determines that the restored areas meet the project requirements, the remaining 20% of the lump sum will be paid. If the Engineer determines that the restored areas do not meet the project requirements, the Contractor will continue with any and all measures necessary to meet the project requirements. All costs associated with the remedial measures shall be borne entirely by the Contractor.

PAY ITEM

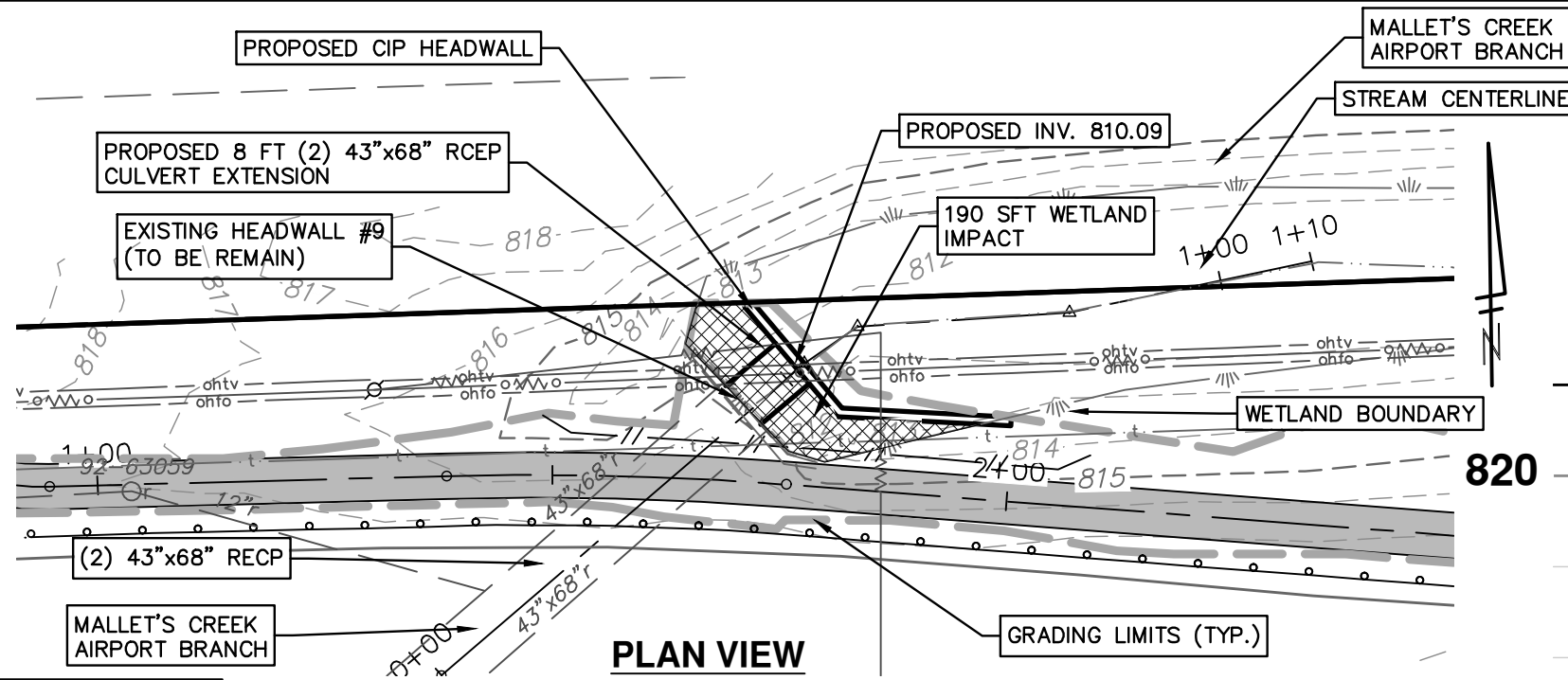
Clean-Up & Restoration, Max \$ _____

PAY UNIT

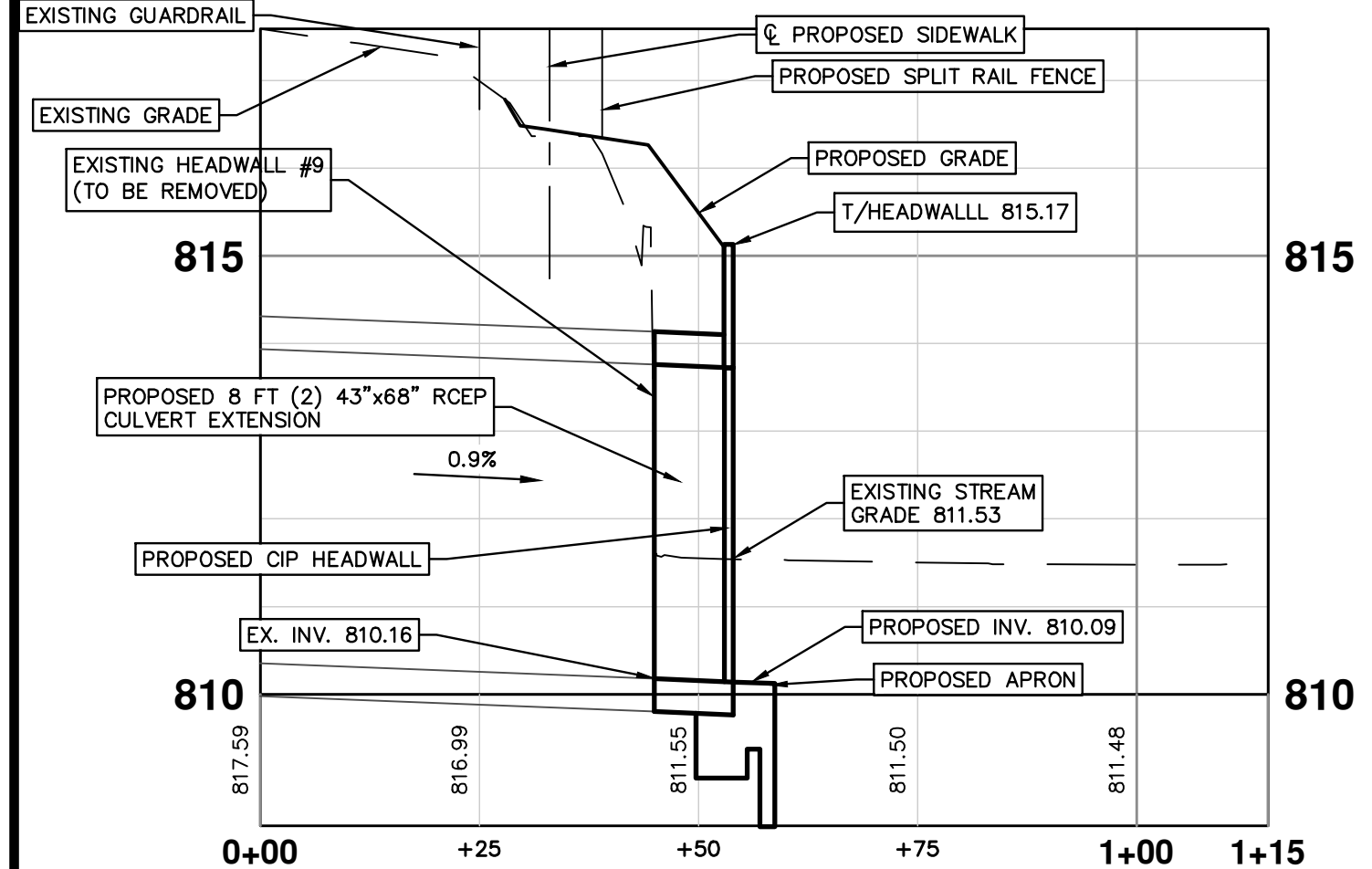
Lump Sum

Payment shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

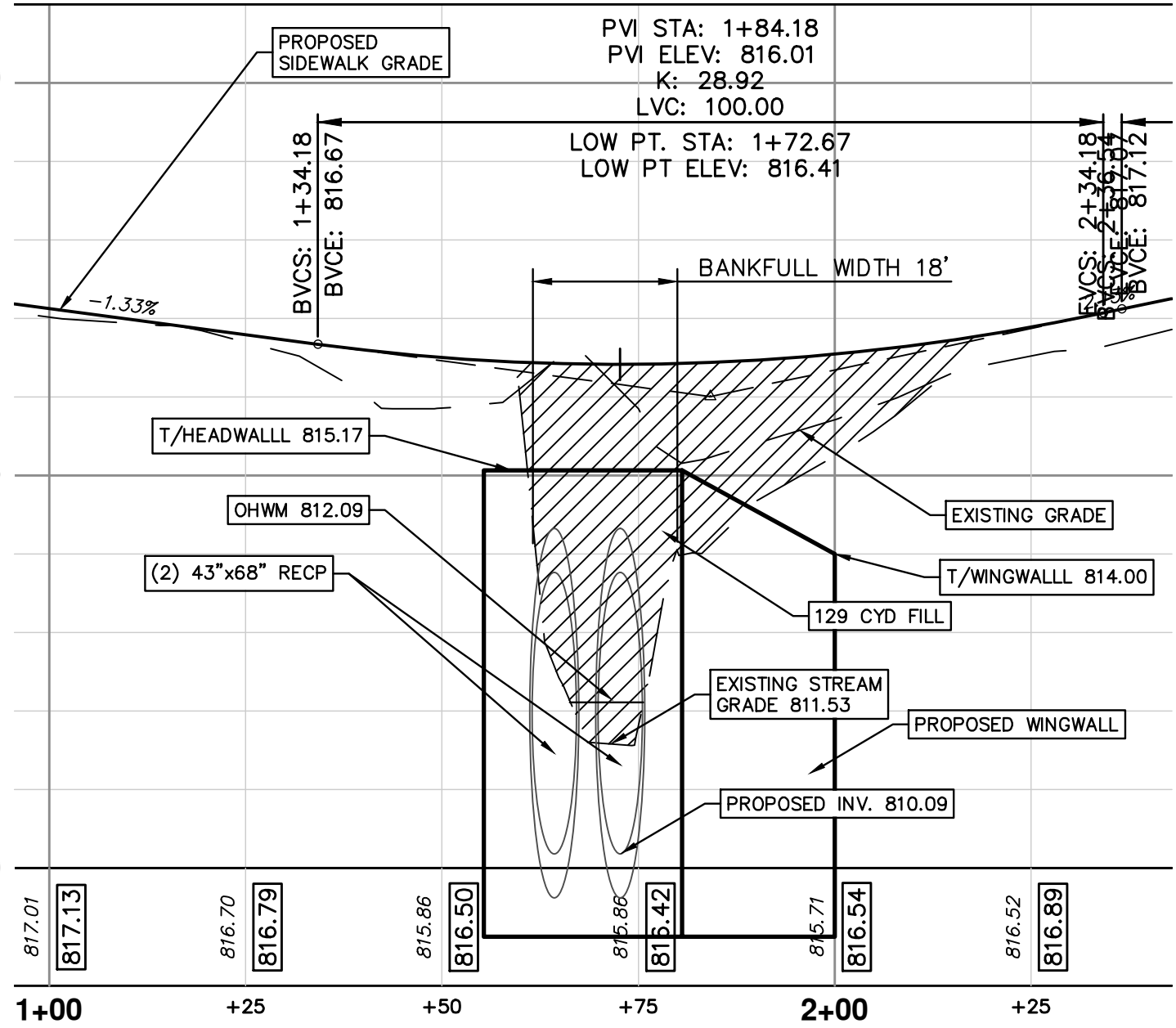
APPENDIX



PLAN VIEW



EXISTING STREAM @ CULVERT EXTENSION



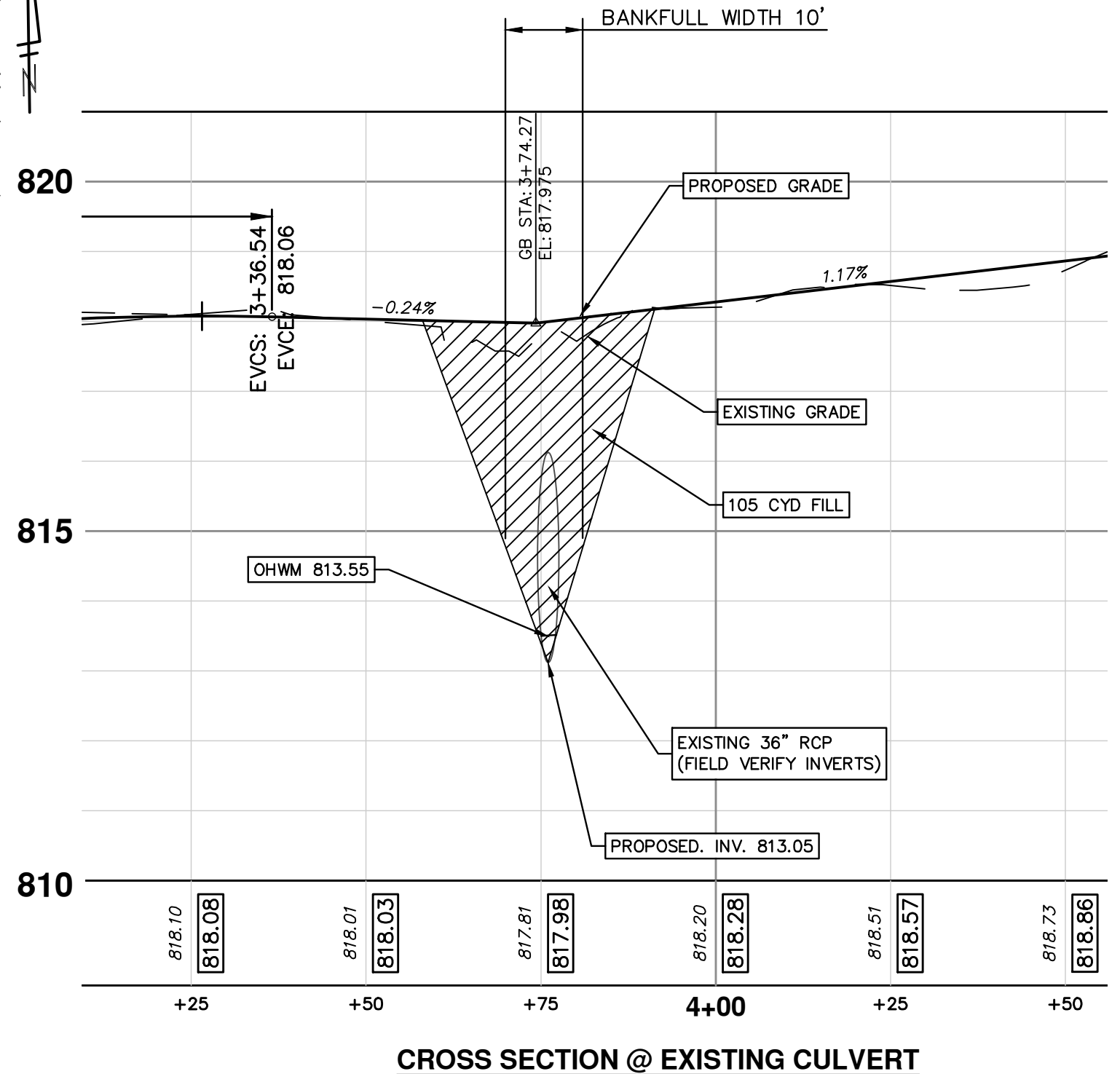
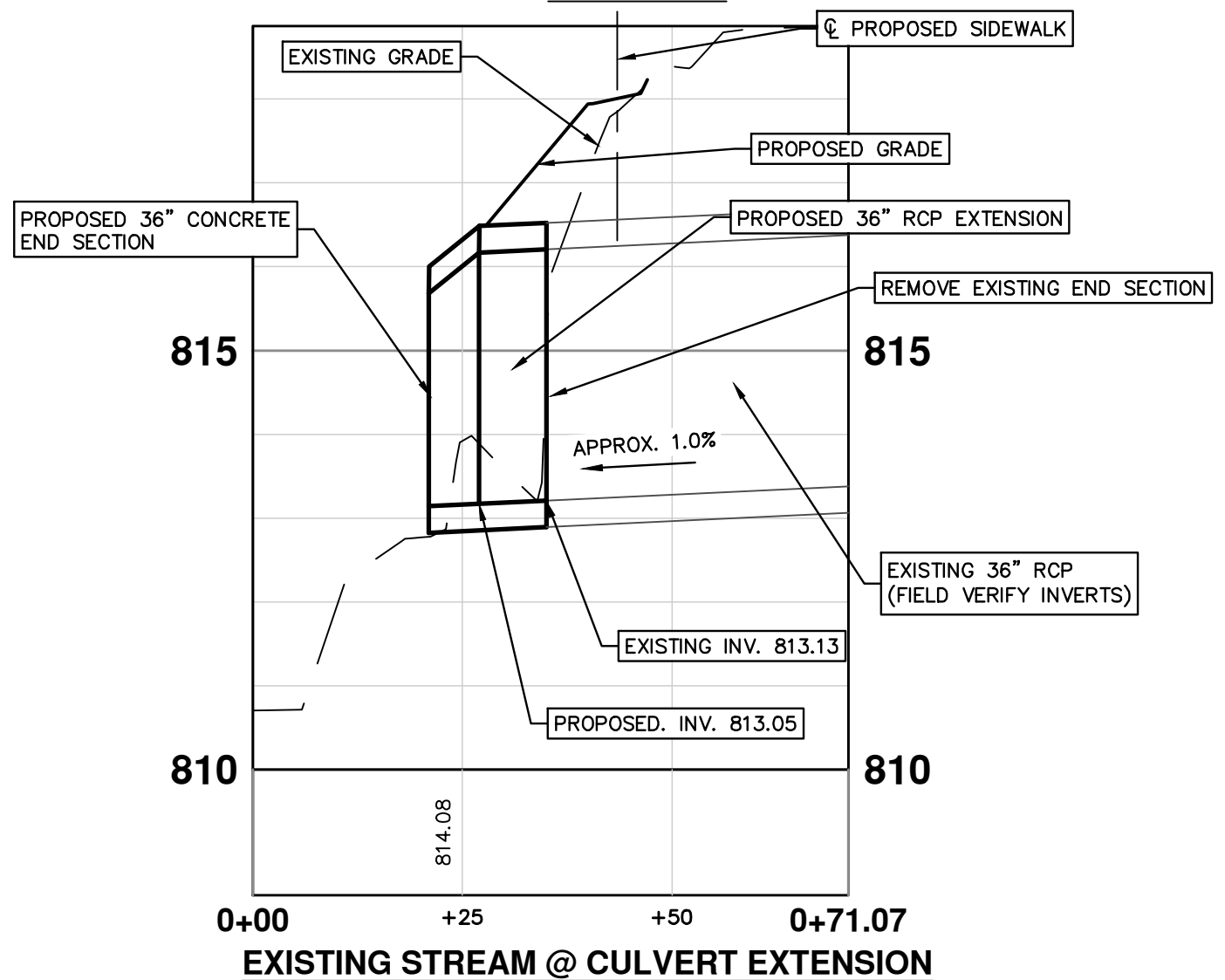
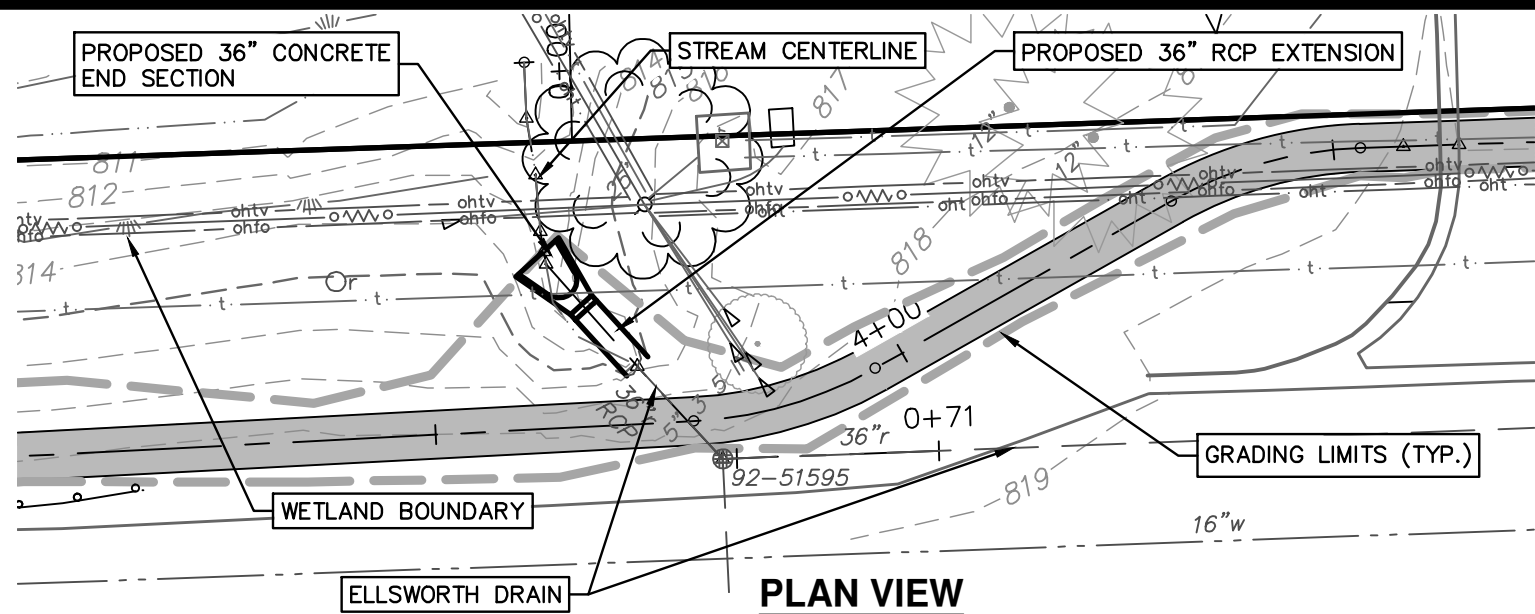
CROSS SECTION @ PROPOSED SIDEWALK

SCALE: 1" = 20'



CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

REV. NO.	DATE	DRAWN BY	CHECKED BY
ELLSWORTH ROAD SIDEWALK			
DR. BWA	CH. CAM	DRAWING NO.	
SCALE 1"=20'	DATE 05/05/2022	2022007 AA-EXH	



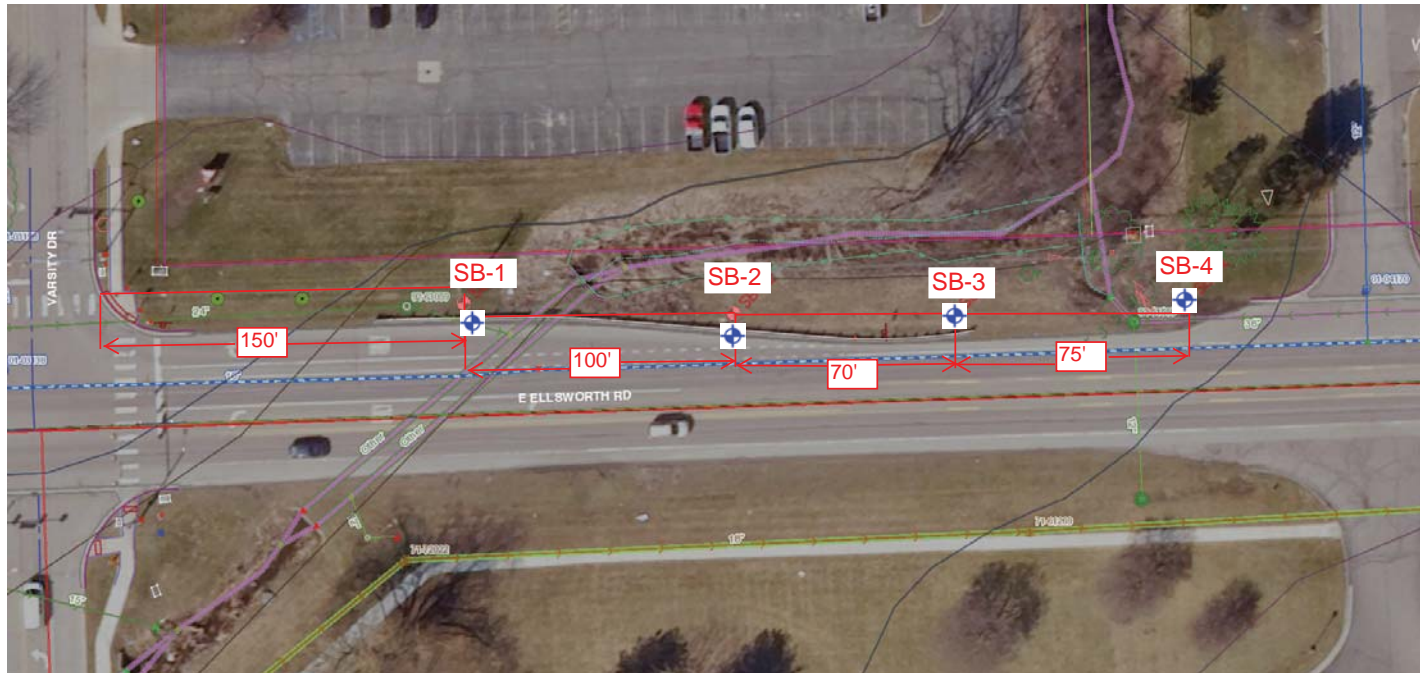
SCALE: 1" = 20'



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REV. NO.	DATE	DRAWN BY	CHECKED BY
ELLSWORTH ROAD SIDEWALK			
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E. Ellsworth Road and Varsity Drive
Ann Arbor, MI



TEST BORING LOCATION PLAN



Testing Engineers & Consultants, Inc.

1343 Rochester Road - PO Box 249 - Troy, Michigan - 48099-0249
 (248) 588-6200 or (313) T-E-S-T-I-N-G
 Fax (248) 588-6232

Boring No.: 4	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/29/2022
Ground Surface Elevation:		Completed: 3/29/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
0.33							
1.25	LS	3		Moist Dark Brown Clayey TOPSOIL (4")	12.1	139	
2.5		13		Crushed Stone-FILL			
		28					
5.0	LS	4		Firm Moist Dark Brown Clay With Some Silt & Sand Seams, Trace of Organic Material-FILL Organic Content = 4.3%	14.9	135	
		5					
		5	5.5				
7.5	LS	3	6	Loose Wet Brown Fine SAND	19.3	129	
		4					
		5		Stiff Moist Gray CLAY With Some Silt			
10.0	LS	5		LL = 27, PL = 12, PI = 15	15.7	132	6590
		6					
		7					
12.5			11	Sand Seams			
15.0	LS	5			15.1	108	
		5					
		6					
20.0	LS	4	20		18.5	129	3300
		5					
		6					
22.5				Bottom of Boring at 20'			

"N" - Standard Penetration Resistance SS - 2" D. Split Spoon Sample LS - Sectional Liner Sample ST - Shelby Tube Sample AS - Auger Sample	w - H ₂ O, % of dry weight d - Bulk Density, pcf qu - Unconfined Compression, psf DP - Direct Push RC - Rock Core	Water Encountered: 5'6" At Completion: 17'0" Boring No. 4
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1343 Rochester Road - PO Box 249 - Troy, Michigan - 48099-0249
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Boring No.: 1	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/30/2022
Ground Surface Elevation:		Completed: 3/30/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			0.42	ASPHALT (5")			
2.5	LS	7 7 7		Medium Compact Moist Brown Gravelly SAND With Some Clay	4.5	127	
5.0	LS	5 4 6	4.5		9.0	141	2470
7.5	LS	3 3 4	5.5	Medium Compact Moist Dark Gray to Gray Clayey SAND With Trace of Gravel	39.4	109	1240
10.0	LS	4 5 4	9.5	Loose Wet Gray Clayey Fine SAND	37.1	106	
12.5			12	Loose Moist Brown Clayey SILT			
15.0	LS	3 3 4		Firm Moist Gray CLAY With Some Silt & Thin Wet Sand Seams	23.7	121	3710
17.5			17	Stiff Moist Gray CLAY With Some Silt			
20.0	LS	4 5 7		LL = 35, PL = 18, PI = 17	17.4	129	7000
22.5	LS	3 4 6			17.5	132	

"N" - Standard Penetration Resistance
 SS - 2" D. Split Spoon Sample
 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push
 RC - Rock Core

Water Encountered: 5'6"
At Completion: 6'7" Caved In
Boring No. 1



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Boring No.: 1	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/30/2022
Ground Surface Elevation:		Completed: 3/30/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
27.5	LS	3 6 9	33.5	Wet Sand Seam	18.5	126	6590
30.0							
32.5							
35.0				Bottom of Boring at 33.5'			
37.5							
40.0							
42.5							
45.0							
47.5							

<p>"N" - Standard Penetration Resistance SS - 2" D. Split Spoon Sample LS - Sectional Liner Sample ST - Shelby Tube Sample AS - Auger Sample</p>	<p>w - H₂O, % of dry weight d - Bulk Density, pcf qu - Unconfined Compression, psf DP - Direct Push RC - Rock Core</p>	<p>Water Encountered: 5'6"</p> <p>At Completion: 6'7" Caved In</p> <p>Boring No. 1</p>
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Boring No.: 2	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/30/2022
Ground Surface Elevation:		Completed: 3/30/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			0.5	ASPHALT (6")			
2.5	LS	10 12 13	3	Medium Compact Moist Brown Gravelly SAND With Some Silt	4.5	139	
5.0	LS	4 5 5	5.5	Loose Moist Brown Gravelly SAND With Some Silt	5.7	138	
7.5	LS	4 3 5	7	Loose Wet Brown Medium to Fine SAND With Some Silt & Gravel	12.8	127	
10.0	LS	4 5 7	8	Medium Compact Wet Gray Clayey Fine SAND	18.6	115	2470
12.5			12	Medium Compact Wet Brown Clayey Fine SAND			
15.0	LS	3 3 4	16	Plastic Moist Gray CLAY With Some Silt & Wet Sand Seams	19.5	101	
17.5			16	Stiff Moist Gray CLAY With Some Silt			
20.0	LS	4 5 6	21	Firm Moist Gray CLAY With Some Silt	14.2	136	4120
22.5	LS	4 5 7	21	Wet Sand Seam	17.5	132	2470

"N" - Standard Penetration Resistance
 SS - 2" D. Split Spoon Sample
 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push
 RC - Rock Core

Water Encountered: 5'6"

At Completion: 4'10" Caved In

Boring No. 2



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Boring No.: 2	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/30/2022
Ground Surface Elevation:		Completed: 3/30/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
27.5	LS	4 9 11	29		16.1	120	2470
30.0				Firm Moist Gray CLAY With Some Silt & Wet Sand Seams Fine to Medium			
32.5			33.5				
35.0				Bottom of Boring at 33.5'			
37.5							
40.0							
42.5							
45.0							
47.5							

<p>"N" - Standard Penetration Resistance SS - 2" D. Split Spoon Sample LS - Sectional Liner Sample ST - Shelby Tube Sample AS - Auger Sample</p>	<p>w - H₂O, % of dry weight d - Bulk Density, pcf qu - Unconfined Compression, psf DP - Direct Push RC - Rock Core</p>	<p>Water Encountered: 5'6"</p> <p>At Completion: 4'10" Caved In</p> <p>Boring No. 2</p>
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Boring No.: 3	Job No.: 62507	Project: Proposed Boardwalk
Client: City of Ann Arbor		Location: Ann Arbor, MI
Type of Rig: Truck		Drilled By: I. Mickle
Drilling Method: Hollow Stem Augers		Started: 3/30/2022
Ground Surface Elevation:		Completed: 3/30/2022

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			0.42	Moist Dark Brown Sandy TOPSOIL (5")	6.5	137	
2.5	LS	8 19 12	3	Compact Moist Brown SAND With Some Gravel			
5.0	LS	5 4 4	5.5	Loose Moist Brown SAND With Trace of Gravel	4.6	130	
7.5	LS	7 5 9	9	Medium Compact Wet Brown Medium to Fine SAND With Some Gravel & Silt	12.8	136	
10.0	LS	5 8 7	12	Medium Compact Wet Gray Fine SAND	17.0	131	
12.5				Loose Wet Gray Fine to Medium SAND With Trace of Gravel, Clayey Seams & Clay Layers	7.1	127	
15.0	LS	3 4 22		Pebble			
17.5							
20.0	LS	3 3 5	20	No Recovery - Blocked			
22.5				Bottom of Boring at 20'			

"N" - Standard Penetration Resistance
 SS - 2" D. Split Spoon Sample
 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push
 RC - Rock Core

Water Encountered: 5'6"

At Completion: 4'4" Caved In

Boring No. 3