ADDENDUM No. 1

RFP No. 26-02

E. Huron River Drive Retaining Wall Replacement and Road Reconstruction

Due Date: January 22, 2026 by 11:00 a.m. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes a total of 65 pages.**

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

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

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

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

I. CORRECTIONS/ADDITIONS/DELETIONS

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

Section/Page(s)	Change
Replace Schedule of Prices 15 – 17	Quantity updates to reflect plan changes New pay items: - 01070.00 Sign, Portable, Changeable Message, Furn & Oper - 02060.00 DS_Guardrail, Rem - 08410.00 DS_Guardrail, Type B, 96 inch Post Removed pay items: - 02060.00 DS_Guardrail, Reconst, Type B - 03052.00 DS_1 inch Min to 4 inch Max Face Stone

	- 03081.00 DS_Biaxial Geogrid - 03082.00 DS_Uniaxial Geogrid - 03083.00 DS_Geotextile <u>Quantity change</u>: - 03051.00 DS_Granular Backfill
Replace Detailed Specifications (44 pages with 45 pages)	Removed: DS_Guardrail, Reconst, Type B Revised: DS_MSE Welded Wire Form Wall Added: DS_Remove Guardrail DS_Guardrail
Replace Plan Set in its entirety Sheet 1-15 with Sheet 1-13	Sheet 1: Sheet List Table revised (Sheets 9 and 10 were removed) Sheet 4: limits of earth excavation added; guardrail items changed from reconstruct to remove and construct Type B; leveling pad added (incidental to retaining wall); geogrid, face stone and geotextile items removed (now included with retaining wall pay item) heet 5: guardrail keynote and pay item from reconstruct to remove and quantity increased Sheet 6: pay items for geogrid, geotextile and face stone removed (now included with retaining wall pay item); geogrid keynote and notes deleted Sheet 7: guardrail keynote and pay item changed from “DS_Guardrail Reconst, Type B” to “DS_Guardrail, Type B, 96 inch Post”, quantity increased Sheet 8: portable,changeable message boards added Sheet 9: remove Sheet 10: remove

II. QUESTIONS AND ANSWERS

The following question has been received by the City. The response is being provided in accordance with the terms of the RFP. Bidders are directed to take note of the following questions and City responses in their review of the RFP as they affect work or details in other areas not specifically referenced here.

Question 1: Please provide the Engineers Estimate (for bonding purposes).
Answer 1: The Engineer's Estimate is approximately $765,000

Question 2: Will inspection be performed by the Owner, or a third party engineering firm? If inspection will be by a third party, which engineering firm will be utilized?
Answer 2: Construction Engineering Services and inspection will be provided by Spalding DeDecker.

Question 3: I assume the Owner will be providing all geotechnical, concrete and HMA testing, correct? If so, which testing company will be utilized for this project?
Answer 3: Testing services will be provided by the testing consultant under contract with the City of Ann Arbor for the 2026 construction season (TBD).

Question 4: I assume all construction layout and surveying will be performed by the Owner, correct?
Answer 4: Construction layout and surveying will be performed by Spalding DeDecker.

Question 5: Is it possible to get a copy of the bid form in MS Excel format?
Answer 5: A MS Excel copy can be provided upon email request to ALoebach@a2gov.org

Question 6: "Embankment" and "Excavation" are to be paid for at PLAN QUANTITY per specification. Contractor / Manufacturer is required to engineer / design a WWF MSE wall based on a specific manufacturer's system AFTER the bid and PRIOR to construction. How will the bidder be able to account for overages / underruns of "Embankment" and "Excavation" if the Contractor / Manufacturer designed system does not correlate to proposed "Excavation" and "Embankment" Limits shown in the current plans?
Answer 6: Earthwork will be paid for per Article 11, subsection J7 of the City of Ann Arbor 2025 Standard Specifications for Construction:
Payment for pay items "Earth Excavation" and Embankment will be per cubic yard. The quantity of earth excavation and embankment was calculated from existing grades. The quantity paid will be plan quantity unless there is a field change which affects the plan quantity. No field measurement for payment of these items will be done at the time of construction.

Question 7: Please review the following four sieve analyses of locally sourced, readily available material that could be used for "DS _ Granular Backfill". Please let me know if one (or more) of these aggregates could be used in lieu of the material specified. This will be far more economical than trying to produce a non-MDOT standard aggregate for this pay item. Also, if the Contractor / Manufacturer designed MSE wall system requires a different gradation than the material specified in the plans, how will that be handled?

Open Graded Options:

2040-MDOT 4G

Sieve/Test	Average	Unit
1 1/2"	100.0	%
1"	95.3	%
3/4"	82.1	%
1/2"	60.0	%
3/8"	49.0	%
#4	29.3	%
#8	17.9	%
#16	11.5	%
#30	8.4	%
#50	6.8	%
#100	5.6	%
#200	4.6	%

2006-MDOT 6AA

Sieve/Test	Average	Unit
1 1/2"	100.0	%
1"	100.0	%
3/4"	86.6	%
1/2"	46.0	%
3/8"	24.8	%
#4	3.3	%
#8	1.8	%
#16	1.4	%
#30	1.3	%
#50	1.3	%
#100	1.2	%
#200	1.2	%
Wash Loss (#200/75um)	1.1	%

Dense Graded Options:

2121-MDOT 21AA Limestone

Sieve/Test	Average	Unit
1 1/2"	100.0	%
1"	89.9	%
3/4"	72.0	%
1/2"	54.4	%
3/8"	47.4	%
#4	32.1	%
#8	22.3	%
#16	16.8	%
#30	13.9	%
#50	12.3	%
#100	10.9	%
#200	9.5	%
Wash Loss (#200/75um)	9.0	%

2121-MDOT 21AA Limestone

Sieve/Test	Average	Unit
1 1/2"	100.0	%
1"	97.5	%
3/4"	85.6	%
1/2"	66.3	%
3/8"	55.4	%
#4	36.5	%
#8	24.0	%
#16	16.5	%
#30	12.7	%
#50	10.6	%
#100	9.2	%
#200	8.0	%
Wash Loss (#200/75um)	7.8	%

Answer 7: The requirements for DS_Granular Backfill are shown in Table 2 of the revised Detailed Specification for MSE Welded Wire Form Wall.

Question 8: The plan sheets 9 and 10 of 15 require generic 18" tall wire facing forms with struts, which does not reflect Hilfiker's proprietary wall system. Based on the above, we have the following questions for this project:

a. Is a welded wire facing with geogrid soil reinforcements at 18" lifts required, or may Hilfiker provide pricing for their all-steel, inextensible Welded Wire Wall system with 24" lifts instead?
b. If welded wire facing with geogrid soil reinforcements is required, are the 18" generic wire facing forms and struts that are detailed in the plans mandatory, or may Hilfiker's 24" lift system be proposed as an alternate facing instead?

Answer 8: Plan sheets 9 and 10 were removed from the plan set. Additionally, the Detailed Specification for MSE Welded Wire Form Wall has been revised to allow more wall systems meeting the design requirements.

Question 9: Is there a high-water level to consider For the MSE wire wall?

Answer 9: Please refer to the geotechnical data provided in the project manual and plan sheets for water table data.

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

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: E. Huron River Retaining Wall Replacement

File #: 2025-26 **RFP#: 26-02**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
01000.00	General				
01001.00	General Conditions, Max. $50,000.00	LS	1.00	$	$
01002.00	Project Supervision, Max. $10,000.00	LS	1.00	$	$
01003.00	Project Clean-Up and Restoration	LS	1.00	$	$
01004.00	Digital Audio Visual Coverage	LS	1.00	$	$
01022.00	Erosion Control, Silt Fence	Ft	371.00	$	$
01024.00	DS_Erosion Control, Straw Wattle, 12 In. Dia.	Ft	50.00	$	$
01040.00	Minor Traffic Control, Max $10,000.00	LS	1.00	$	$
01041.00	Traffic Regulator Control	LS	1.00	$	$
01050.00	Sign, Type B, Temp, Prismatic, Furn & Oper	Sft	330.00	$	$
01051.00	Sign, Type B, Temp, Prismatic, Special, Furn & Oper	Sft	120.00	$	$
01070.00	Sign, Portable, Changeable Message, Furn & Oper	Ea	3.00	$	$
01091.00	Barricade, Type III, High Intensity, Lighted, Furn & Oper	Ea	12.00	$	$
02000.00	Removals				
02001.01	Tree, Rem, 6 In. - 12 In.	Ea	17.00	$	$
02001.02	Tree, Rem, 13 In. - 19 In.	Ea	2.00	$	$
02001.06	DS_Clearing	Ac	0.30	$	$
02021.00	HMA Surface, Rem	Syd	928.00	$	$
02050.00	Sign, Rem, Salv	Ea	3.00	$	$
02060.00	DS_Guardrail, Rem	Ft	412.00	$	$
02070.00	DS_Retaining Wall, Rem	Ft	286.00	$	$
02080.00	DS_Pavt for Butt Joints, Rem	Syd	58.00	$	$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: E. Huron River Retaining Wall Replacement

File #: 2025-26 **RFP#: 26-02**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
03000.00	Earthwork				
03030.01	Exploratory Excavation, SD-TD-1, (0-10' Deep)	Ea	3.00	$	$
03050.00	Embankment	Cyd	88.00	$	$
03051.00	DS_Granular Backfill	Cyd	4,070.00	$	$
03040.00	Earth Excavation	Cyd	3,300.00	$	$
03080.00	DS_Mechanically Stabilized Earth Wall, Welded Wire Form, Furn and Install	Sft	2,849.00	$	$
04000.00	Sanitary Sewer				
04061.00	Sanitary Structure Cover, Adjust	Ea	1.00	$	$
06000.00	Storm and Drainage				
06001.01	12 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	20.00	$	$
06012.01	12 In., CL IV RCP End Section	Ea	1.00	$	$
06013.01	DS_8 In., PVC Storm Sewer, SD-TD-2	Ft	28.00	$	$
06042.00	Riprap, Heavy	Syd	38.00	$	$
06071.01	DS_Storm Single Inlet, 24 In. Dia., (0-8' deep), Modified	Ea	1.00	$	$
06080.01	Storm High Capacity Inlet, 48 In. Dia., (0-8' deep)	Ea	1.00	$	$
06080.02	Storm High Capacity Inlet, 48 In. Dia., Additional Depth	Ft	4.00	$	$
06160.01	Storm Structure Cover	Ea	1.00	$	$
06181.02	Underdrain, Subbase, 6 In.	Ft	610.00	$	$
08000.00	Streets, Driveways, & Sidewalks				
08010.03	Aggregate Base, 8 In., 21AA, CIP	Syd	1,406.00	$	$
08070.14	HMA, 4EL	Ton	137.00	$	$
08070.18	HMA, 5EL	Ton	92.00	$	$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: E. Huron River Retaining Wall Replacement

File #: 2025-26 **RFP#: 26-02**

ITEM NUMBER	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
08110.00	Conc, Curb or Curb & Gutter, All Types	Ft	309.00	$	$
08111.00	DS_Shld Gutter, Conc, Det 2	Ea	1.00	$	$
08200.11	Pavt Mrkg, Polyurea, 4 In., White	Ft	731.00	$	$
08200.12	Pavt Mrkg, Polyurea, 4 In., Yellow	Ft	732.00	$	$
08300.00	Monument Box, Adjust	Ea	1.00	$	$
08400.00	DS_Post Hole Through Conc	Ea	1.00	$	$
08410.00	DS_Guardrail, Type B, 96 inch Post	Ft	413.00	$	$
10000.00	Landscaping				
10060.00	DS_Turf Restoration	Syd	580.00	$	$

Total Estimated Cost **$**

DETAILED SPECIFICATIONS

An item number ending in X.7X and an item's description starting with "DS_" indicates a detailed specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES

AA 1 of 1 1/14/26

Description

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 the latest revision of the City of Ann Arbor 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 not to damage or alter in any way any existing utility, except where specified on the Plans or as directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all these facilities to be in good condition, except for those shown on the Plans for repair 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.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

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

1. The Engineer anticipates that construction can begin on or after **March 30, 2026**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions may be granted if the Notice to Proceed is delayed beyond this date.

2. This project requires asphalt roadway removal, retaining wall removal, guardrail removal and replacement, mechanically stabilized earth (welded wire form) retaining wall construction, concrete curb and gutter, aggregate base, hot mix asphalt (HMA) paving, bank stabilization, and pavement markings on E. Huron River Drive. The entire project must be completed within **ninety (90) calendar days** from issuance of the notice to proceed.

3. Complete retaining wall construction prior to commencing with road and other related work unless otherwise approved by the Engineer.

The City expects to furnish the Contractor with two (2) copies of the Contract, for its execution, on or before **January 30, 2026**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance documentation, to the City by **February 23, 2026**. City Council approval to award a contract for this project is expected on **March 2, 2026**. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract and Notice to Proceed.

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

Prior to the start of any construction, the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. Work shall not be started until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule upon request by the Engineer and present it to the Engineer within seven days of said request.

The Contractor shall organize, coordinate, and diligently execute the work at the locations shown on the plans and as described below. For this Contract, the “Start of Work” definition is the date when the detour signs become effective, and all required temporary traffic control and SESC measures are in place and ready for use. The Engineer will consider individual streets or phases ready for opening to traffic once all concrete work is complete, utility structures covers are raised to finished grade and placement of the HMA top course is complete. Within 10 days of opening

the street to traffic the Contractor will complete all work, which includes, but is not limited to, minor slope restoration, clean-up, street cleaning, utility structure cleaning, the removal of all temporary traffic control and SESC devices and detour signs, and other necessary work and as directed by the Engineer. Failure to complete work in a timely manner may result in the suspension of active project work or a delay in starting subsequently planned project work.

Failure to open to traffic or complete all work as specified within the time specified, including time extensions granted thereto as determined by the Engineer, will entitle the City to deduct from the payments due the Contractor, **$1,000.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each calendar day the work remains incomplete.

Assessment of Liquidated Damages will occur until the required work is complete in the current construction season. If, with the Engineer's approval, work extends beyond the seasonal suspension period (November 15 through April 15), the City will not assess Liquidated Damages until the Contractor resumes and completes the work in the following construction season.

The following workday, hour and other work restrictions are imposed by the City of Ann Arbor.

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

- Monday through Friday: 7:00 am – 8:00 p.m.
- Saturday: 7:00 a.m.– 8:00 p.m.; Give notice to Engineer no less than 48 hours and no more than 5 days in advance.
- Sunday: Only with written approval from the City of Ann Arbor

Perform no work during the following Holiday periods unless approved in advance by the Engineer:

- Memorial Day - 3:00 p.m. Friday, May 22, 2026, through 7:00 a.m. Tuesday, May 26, 2026.
- Juneteenth - 3:00 p.m. Wednesday, June 18, 2026, through 7:00 a.m. Monday, June 22, 2026.
- Independence Day - 3:00 p.m. Thursday, July 2, 2026, through 7:00 a.m. Monday, July 6, 2026.
- Labor Day - 3:00 p.m. Friday, September 4, 2026, through 7:00 a.m. Tuesday, September 8, 2026

Perform no work during the following scheduled University of Michigan home football game dates unless approved in advance by the Engineer:

- September 7, 2026
- September 12, 2026
- September 19, 2026
- Other home games TBA

Working in the Rain

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

Engineer may delay or stop the work due to threatening weather conditions.

The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain.

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.

Working in the Dark

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.

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.

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.

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 resulting from working in the dark.

If the construction Contract is not completed within the specified period(s) including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor, this Contract may be terminated with no additional compensation due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, Contract items paid for on a Lump Sum basis shall be paid up to a maximum percentage equal to the percentage of the Contract work that has been completed.

The City's decision to add or delete work, change the construction limits, or the City's contribution to a delay of the construction shall not entitle the Contractor to receive additional compensation, nor shall it relieve the Contractor of any responsibility for completion of work.

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

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES

Contract Drawings / Plans

Offerors/proposers shall carefully check and review all Drawings, plans, and specifications, 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.

Offeror/proposer shall carefully examine the Schedule of Pricing/Cost Form, preliminary layouts, specifications, and the work sites until it is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the proposal shall be considered prima facie evidence that the Offeror/Proposer has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

Quantities and Unit Prices

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

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

Description

Maintain traffic in accordance with Articles 10 and 11 of the City of Ann Arbor Public Services Department 2024 Standard Specifications and as specified in sections 104.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and as described herein.

Furnish, erect, maintain and, upon completion of the work, remove all traffic control devices and barricade lights as required on the project for the safety and protection of local traffic. This includes, but is not limited to, temporary advance, regulatory, and warning signs; barricades and channelizing devices at intersections and on streets where traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets, and traffic control devices for moving construction operations.

Materials

Provide materials and equipment shall meet the requirements specified by Article 10 of the City of Ann Arbor 2024 Standard Specifications, sections 812.02 and 922 of the MDOT 2020 Standard Specifications for Construction and the 2011 MMUTCD.

Maintenance of Local Traffic

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.

Always maintain local access for emergency vehicles, refuse pick-up, mail delivery, school buses, and ingress/egress to public and private properties.

The Contractor must accommodate the safe access to the residential buildings and businesses located within the construction area.

Driveways shall not be blocked for extended periods of time unless arrangements can be made with the affected property owner(s). When it becomes necessary to temporarily block driveways, the Contractor shall notify the affected property owners in advance to coordinate the work and allow sufficient time for vehicles to vacate from properties. It may be necessary to allow 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.

At times, it may be necessary to temporarily obstruct local traffic during the performance of the work. The Contractor shall provide traffic regulator control in conformance with Chapter 6E of the MMUTCD, Sections 6E.01 thru 6E.08. A minimum of two traffic regulators are required. The cost of traffic regulator control shall be included in the contract pay item "**Traffic Regulator Control**".

The Contractor shall use quantities of dust palliative, maintenance aggregate, and cold patching/HMA mixtures 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, cold patch and/or hot mix asphalt mixture 36A, 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.

The work of maintaining and relocating existing warning, regulatory and/or guide signs is included in the bid price for the contract pay item "**Minor Traffic Control, Max $_____**".

Mailboxes and newspaper boxes that are in the way of the construction shall be removed and reset immediately in a temporary location approved by the Engineer. Mail and paper delivery shall not be interrupted during the construction. Upon completion of the construction, all mailboxes and newspaper boxes, including their supports, shall be repositioned in their permanent locations as approved by the Engineer. This work shall be included in the contract unit price for the contract pay item "**General Conditions, Max $_____**", and it will not be paid for separately.

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. This is to be accomplished by flag persons 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 always provide for safe travel as directed by the Engineer. The work of traffic regulators shall be included in the bid price for the contract pay item "**Minor Traffic Control, Max $_____**".

Each pressure distributor, paver and roller shall be equipped with at least one approved flasher light which shall be mounted on the equipment to give a warning signal ahead and behind.

Construction Influence Area (CIA) - The CIA shall include the proposed work areas within the right-of-way of the four proposed construction locations. The CIA shall include the affected portions of the driveways along and contiguous with these roadways.

In addition, the CIA shall include the rights-of-way of all roadway segments used for detours and all locations that contain advance warning and/or regulatory signs, pavement markings, plastic drums, traffic delineators, and all other project related traffic maintenance items.

Police and Fire - The Contractor shall notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any roads, or traffic shifts causing restricted movements of traffic or restricted access.

Work performed by City of Ann Arbor Signs and Signals Unit - No additional or extra compensation will be paid for any delays caused by City of Ann Arbor Signs and Signals.

Sign Removals and Storage

The Contractor shall remove and store the signs as shown on the plans and as directed by the Engineer. After construction is complete, but before opening any roadway to traffic, Signs and Signals will reinstall all signs in their proper, permanent location. To coordinate sign removal and installation/reinstallation, the Contractor shall notify the Signs and Signals Unit at least five (5) working days (Monday-Friday) in advance of when the sign work will need to be completed. It is the responsibility of the Contractor to ensure that City of Ann Arbor Signs and Signals Unit is scheduled, kept apprised of the progress of construction, and notified a second time immediately (4 working hours) prior to the need to complete the sign work. The installation/reinstallation of all signs shall be completed by the City of Ann Arbor Signs and Signals Unit.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SOIL BORING, PAVEMENT SECTION AND GEOTECHNICAL DATA

Description

Data pertaining to existing soil borings and pavement sections which may be included in these Contract Documents are provided to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any/all conclusions it may draw from the data.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
STRAW WATTLE

Description

Furnish and install Straw Wattles as Soil Erosion/Sedimentation Control measure(s) according to the plans and as directed. Perform this work according to Division 2 of the Michigan Department of Transportation 2020 Standard Specifications for Construction Article 8 of the City of Ann Arbor (CAA) Standard Specifications for Construction, and as specified herein.

Materials

Furnish Straw Wattles manufactured from 100% weed seed free agricultural straw, completely encased in a tight, tubular, biodegradable netting, cinched or knotted on each end in lengths suitable for the intended use to minimize splicing. Furnish biodegradable Wattle netting with 18-month duration and with ½-inch nominal aperture size. Furnish Wattles of the diameter shown on the plans, with corresponding minimum density specified below:

Diameter (inches)	9	12	20
Minimum Density (lbs/ft^3)	3.2	3.3	2.4

Furnish 1-inch by 1-inch nominal rectangular wood stakes, minimum 30 inches long. Furnish the Manufacturer's published installation guidelines at least 3 business days prior to installation. Furnish General Certification for material acceptance.

Construction

Install Straw Wattles according to the Manufacturer's installation guidelines and as specified herein. Place the Wattle parallel to contours along slopes (toe and/or mid-slope, per plans) and across ditch bottoms. Countersink the Wattle in a 2-inch trench, with the ends turned up 1 to 2 feet up-slope to prevent water flow around the ends. In ditches, grade a low point to cause the weir elevation at the middle of ditch bottom. Secure the Wattle with wood stakes driven through the center of Wattle to 24-inch embedment, and 2-inch maximum protrusion above the wattle. Place stakes along the Wattle at 4 foot maximum spacing, not greater than 2 feet from Wattle ends. Transition between Wattle segments with a staked, 6-inch overlap, or butt joints secured with organic (e.g. coir) twine.

Maintain Straw Wattles in place, replacing broken or deteriorated Wattles as directed. Remove accumulated settlement as directed. Except as otherwise directed, remove Straw Wattles upon full vegetation establishment. Restore un-vegetated areas as directed upon removal.

Measurement and Payment

The completed work for **DS_Erosion Control Straw Wattle, _ In. Dia.** will be measured in place and paid for per foot at the contract unit price, exclusive of splice overlaps.

Pay Item	Pay Unit
DS_ Erosion Control, Straw Wattle, _ In. Dia.	Foot

Payment for **DS_Erosion Control, Straw Wattle, _ In. Dia.** includes all equipment, labor, and materials to furnish and install wattles as specified, to remove wattles upon vegetation establishment, except as otherwise directed and sediment removal as required or as directed. Except where damaged by the Contractor's activities, broken and/or deteriorated Straw Wattles replaced as directed will be paid for separately.

Restoration of un-vegetated areas upon removal of Straw Wattles will be paid for separately as **DS_Turf Restoration** or **DS_Slope Restoration, Native Grass** as applicable.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CLEARING

Description

This work shall consist of removing and disposing of all brush, trees, ground cover and miscellaneous debris as shown on the construction plans in accordance with Section 201 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as modified herein.

Construction

Perform work in accordance with Subsection 201.03 MDOT 2020 Standard Specifications for Construction.

The contract unit price shall be payment in full for all materials, equipment and labor for removing and disposing of any trees not specifically included in tree removal pay items, bushes, brush, ground cover and miscellaneous debris.

Also included with this work shall be any regrading of the immediate area around said work for the purpose of providing drainage routes to installed catch basins, and slope clean-up around repaired slope drains, as required and/or directed by the Engineer. This work shall be entirely completed prior to Contractor placing topsoil, seed, fertilizer and mulch, sodding, or other specified slope treatment as required for the contract.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location using the following pay item:

Pay Item	**Pay Unit**
DS_Clearing	Acre

Measure **DS_Clearing** per acre for the area in which the work was performed, including furnishing all materials, labor and equipment required to complete the work, as specified.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
REMOVE GUARDRAIL

Description

This work includes the removal of an existing steel guardrail and disposing of all materials, posts and foundations (if present) where shown on the plans in accordance with Section 204 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as described herein.

Materials

Provide materials where required in accordance with those specified in Subsection 204.02 of the MDOT 2020 Standard Specifications for Construction.

Construction

Completely remove and dispose of guardrail, hardware, posts and any other material to the full depth where shown on the plans according to subsection 204.03 of the MDOT 2020 Standard Specifications for Construction, and as directed by the Engineer.

Backfill post holes as required per subsection 204.03 of the MDOT 2020 Standard Specifications for Construction.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location using the following pay item:

Pay Item	Pay Unit
DS_Guardrail, Rem	Foot

Measure **DS_Guardrail, Rem** length in place by the unit foot and pay for it at the contract unit price, which price includes all cost for labor, equipment, and materials necessary to complete the work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MODIFIED RETAINING WALL REMOVAL

AA/SDA:APL 1 of 1 04/03/24

Description

This work includes the removal of an existing steel guardrail retaining wall and disposing of all materials, posts and foundations (if present) where shown on the plans in accordance with Section 204 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as described herein.

Materials

Provide materials where required in accordance with those specified in Subsection 204.02 of the MDOT 2020 Standard Specifications for Construction.

Construction

Completely remove and dispose of guardrail, hardware, geotextile fabric, posts and any other material comprising the existing retaining wall to the full depth as shown on the plans according to subsection 204.03 of the MDOT 2020 Standard Specifications for Construction, and as directed by the Engineer.

Backfill post holes as required per subsection 204.03 of the MDOT 2020 Standard Specifications for Construction.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location using the following pay item:

Pay Item	**Pay Unit**
DS_Retaining Wall, Rem, Modified	Foot

Measure **DS_Retaining Wall, Rem, Modified** in place by the unit linear foot along the top of the wall and pay for it at the contract unit price, which includes the costs for all labor, equipment, and materials necessary to complete the work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PAVEMENT REMOVAL FOR BUTT JOINTS

AA/SDA:APL 1 of 1 05/23/24

Description

This work shall consist of removing and disposing of an existing paved surface to the thickness of the proposed overlay for the full width of the joint as shown on the construction plans in accordance with Section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as modified herein.

Construction

Pavement removal for butt joints shall consist of saw cutting the existing paved surface to the full depth of the expected placement and removing the existing surface by milling or chipping to that depth for the areas shown on the plans or as directed by Engineer.

The contract unit price shall be payment in full for all materials, equipment and labor for removing and disposing of removed pavement materials and any miscellaneous debris.

Perform work in accordance with Subsection 501 MDOT 2020 Standard Specifications for Construction.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location using the following pay item:

Pay Item	**Pay Unit**
DS_Pavt for Butt Joints, Rem	Square Yard

Measure **DS_ Pavt for Butt Joints, Rem** per square yard for the area in which the work was performed, including furnishing labor and equipment required to complete the work and disposing of all materials, as specified.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MECHANICALLY STABILIZED EARTH WELDED WIRE FORM WALL

Description

This work consists of the design, manufacture, furnishing and installing of mechanically stabilized earth (MSE) walls in accordance with the plans, plans per the requirements of the City of Ann Arbor (CAA) 2025 Standard Specifications for Construction and the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as specified herein.

The following definitions apply when used herein and on the plans:

MSE WWF Wall System. A soil-retaining system employing either strip or grid-type metallic tensile (inextensible) soil reinforcement, or geosynthetic grid-type (extensible) soil reinforcement in the soil mass and a facing that is vertical or nearly vertical (battered). The system includes wire facing units, steel or geosynthetic soil reinforcement, connecting hardware, leveling pad, special corner components and any other materials necessary to complete the work.

Manufacturer. The individual or legal entity that performs part of the work through a contract agreement with the Contractor. This includes an individual or legal entity that owns the patent, product trademark, product copyright or product name for the approved MSE wall system. This includes an individual or legal entity that supplies materials for construction of the MSE wall system. This includes an individual or legal entity that fabricates components of the MSE wall system through a licensing agreement with the owner of the patent, product trademark, product copyright or product name.

Designer. An individual who is a Professional Engineer licensed in the State of Michigan, is employed by the manufacturer or a company that is a subcontractor to the Contractor and is responsible for the design and working drawings required herein.

Checker. A Professional Engineer licensed in the State of Michigan who is employed by the same company as the Designer and is responsible for verifying and checking the design and working drawings developed by or under supervision of the Designer.

Load and Resistance Factor Design (LFRD). The *AASHTO LRFD Bridge Design Specifications*, which the design must satisfy unless otherwise specified herein.

Table 1: Approved MSE Wall Systems

Manufacturer	Wire Faced Form Systems
Hilfiker Retaining Walls 1902 Hilfiker Lane Eureka, California 95503-5711 (800) 762-8962 www.hilfiker.com	Welded Wire Wall
Reinforced Earth Company 1444 North Farnsworth Ave., Suite 505 Aurora, Illinois 60505 (630) 898-3334 www.reinforcedearth.com	TerraTrel®
Strata Systems 1831 North Park Avenue Burlington, NC 27217-1100 USA 800.680.7750 https://www.geogrid.com	StrataWall® System
Tensar Earth Retention Systems 2500 Northwinds Parkway, Suite 500 Alpharetta, GA 30009 (800) TENSAR-1 https://www.tensarcorp.com/solutions/walls-slope-systems/	SierraScape®
Earth Retention LLC Rope Mill Parkway Woodstock, GA 30188 678.903.3614 www.earthretention.com	Welded Wire Form System

Design

The Engineer has performed an external stability analysis of the reinforced soil mass in accordance with LRFD. The external stability consisted of analyzing global stability (deep- seated failures), sliding stability of the reinforced soil mass, overturning of the reinforced soil mass and bearing resistance of the subgrade. The external stability was initially checked using the minimum soil reinforcement length required by LRFD. If additional soil reinforcement length was required, the plans indicate the minimum reinforcement length "L" required to achieve external stability. Seismic forces were not included in the external stability analysis.

Designer Responsibility. The Designer is responsible for the internal stability of the reinforced soil mass and all components of the MSE wall system. Perform the design in accordance with the specific LRFD articles referenced and to all other applicable LRFD articles, except as specified herein. Specify the facing unit batter necessary to prevent outward rotation of the MSE wall system during loading. Do not apply seismic forces for the internal stability design.

Design MSE walls with welded wire form facing units for a 100-year service life for permanent

installations in accordance with *LRFD Article 11.10.6.4.2*.

A. Internal Stability. Satisfy *LRFD Article 11.10.6*. Use only the Simplified Method to compute the internal stability including definition of the failure plane. Use a friction angle of 32 degrees and a unit weight of 120 pcf for soil within the reinforced soil mass. Extend the soil reinforcement sufficiently beyond the failure plane to stabilize the retained backfill material. In the absence of site-specific information, assume the retained backfill material behind the reinforced soil mass to be cohesionless with a friction angle of 30 degrees and a unit weight of 120 pcf.

   Account for external loads which affect the internal stability such as those applied through piling, bridge footings, traffic, slopes, surcharges, differential hydrostatic pressures, lateral loads from parapets, traffic barriers, guardrail posts, soundwalls, light poles and sign supports.

   Account for vehicle collision force. Design MSE wall for vehicular collision force per sections *3.6.5.1 and C3.6.5.1 of the LRFD*. The vehicular collision force is to be assumed to act in a direction of 15 degrees with the edge of the pavement in a horizontal plane and to be distributed over an area 5 feet long by 2 feet high.

B. Live Load Surcharge. Use a unit weight of 120 pcf for surcharges.

   1. Traffic Loading. Apply live load surcharges in accordance with *LRFD Article 3.11.6.4*. Do not use a surcharge less than 3 feet in height.

   2. Loading other than Traffic. Apply surcharges in accordance with *LRFD Articles 3.11.6.1 through 3.11.6.3*.

C. Traffic Loads on Barriers. Apply impacts to barriers in accordance with *LRFD Article 11.10.10.2*.

D. Hydrostatic Pressures. Satisfy *LRFD Article 11.10.10.3*. Consider the high-water level to be the 100-year event shown on the plans.

E. Obstructions in the Reinforced Soil Mass. Satisfy *LRFD Article 11.10.10.4*. Account for all obstructions/appurtenances behind, in front of, under, mounted upon, or passing through the wall such as drainage structures, traffic barrier, utilities, abutments, piers, piles, guardrail posts or other items shown on the plans in the stability design of the wall and in details of all connections and soil reinforcement. Accurately show all obstructions/appurtenances on the working drawings. Notify the Engineer of any potential irresolvable conflicts prior to fabrication. The splay angle of soil reinforcement is limited to a maximum of 15 degrees per *LRFD C11.10.10.4*.

F. MSE Abutments. Satisfy *LRFD Article 11.10.11* for MSE walls interfacing with bridge abutments, piers, and other structures as necessary.

G. Wall Embedment and Leveling Pad. Embed facing units not less than 24 inches (measured to the top of the leveling pad), unless otherwise specified on the plans. For sloping ground (1V:4H or steeper) in front of the wall the MSE wall embedment must be per *LRFD Articles 11.10.2.2* and *C11.10.2.2* and a minimum 4-foot-wide bench in front of the wall provided.

Leveling pad elevations are the responsibility of the Designer unless otherwise shown on the plans. Provide a leveling pad extending 6 inches beyond the front face and embedment limits of the facing units to the depth shown on the plans. Leveling pads may need to be wider for curved wall alignments. Do not use a leveling pad less than 12 inches wide nor less than 8 inches in thickness. Facing units overhanging leveling pads are prohibited.

H. Soil Reinforcement. Satisfy *LRFD Articles 11.10.2.1*. and *11.10.6*. Limit vertical spacing of soil reinforcement for wire faced walls to 2 feet maximum. Connect all designed soil reinforcements placed in the reinforced soil mass to the facing units. Do not design for a yield strength of more than 65 Kips per square inch (ksi).

Determine the required length of the soil reinforcement by design, but do not use a length less than all of the following for walls without a sloping backslope:

- 0.7 times the wall height (H) as depicted in *LRFD Figure 11.10.2-1*;
- 8 feet or;
- As noted on the plans.

Determine the required length of the soil reinforcement by design, but do not use a length less than all of the following for walls with a sloping backslope:

- 0.8 times the wall height (H) as depicted in *LRFD Figure 11.10.2-1*;
- 8 feet or;
- As noted on the plans.

Use a uniform soil reinforcement length throughout the entire height of the wall for each design wall section.

I. Welded Wire Facing Units. Satisfy *LRFD Articles 11.10.2.3 and 11.10.6*.

J. Special Corner Units. Satisfy *LRFD Articles 11.10.2.3 and 11.10.6*. Design special corner units for walls where a change of direction from a straight line creates an included angle of 120 degrees or less. Ensure corner elements are separated from the adjacent wire facing units and secured by means of separate soil reinforcement. Include isolation joints that function similar to corner units in the design and working drawings to increase tolerance for differential settlement when necessary. When two intersecting walls form an enclosed angle of 70 degrees or less, ensure the affected portion of the walls is designed as an internally tied bin structure with at-rest earth pressure coefficients.

K. Reinforcement and Connections. Ensure reinforcement is PE, polypropylene or high-tenacity polyester resistant to UV oxidation and has been evaluated by *AASHTO NTPEP*. Ensure reinforcement is shown to retain a minimum of 70 percent strength after 500 hours in a weatherometer when tested in accordance with *ASTM D4355/D4355M.* Furnish a test data certification in accordance with the *MQAP Manual.*

L. Part-Width Construction. Provide all required MSE wall details necessary for construction when bridge substructure is built using part-width construction techniques.

Submittals

Submit complete design calculations, working drawings, notes, and material specifications for the proposed wall system to the Engineer for review prior to fabrication. Do not start fabrication until approval has been received from the Engineer. The Engineer will require up to 21 calendar days for each review cycle and revisions may be required following each review. No extension of time or additional compensation will be granted due to delays in preparing the final working drawings, calculations and material specifications or securing approval from the Engineer.

Include detailed design calculations, working drawings, notes, and material specifications in every submittal. Ensure all submittals are in PDF files submitted to the Engineer. Hard copies of submittals will not be accepted. A submittal set, indicating revisions to be made, will be returned following each review. Revise and furnish the final detailed design calculations, working drawings, notes, and material properties sealed by the Designer for distribution. Ensure the Designer's seal is clearly visible on the calculations and working drawings.

Submittal requirements contained herein apply to both permanent and temporary MSE walls.

A. Calculations. Provide detailed design calculations, notes, and material specifications on 8.5 by 11-inch sheets and include the City's project designations (project name and job number), wall designations, page number, date of preparation and initials of the Designer and Checker.

   Provide design calculations and explanatory notes that are legible and that demonstrate the design criteria have been met. Include example hand calculations for the tallest wall and most severe external loading conditions for project specific sections which illustrate conformance of the computer programs with the design criteria. Clearly indicate the factored loads and factored resistance in the calculation of sliding, pullout, overturning and the applied bearing pressure. At a minimum, include the design of the facing units, connections, and soil reinforcement in the calculations.

B. Working Drawings. Prepare working drawings on 11 by 17-inch sheets including borders. Provide a title block in the lower right-hand corner of each sheet. Include the sheet number, wall name or designation and the City's project designations (project name and job number) within all title blocks.

   Include all details, dimensions, quantities, and cross sections on the working drawings necessary to construct the wall for full or part-width construction including, but not limited to the following items:

   1. Plan and elevation sheets for each wall showing the following:

      a. Elevation views of the walls must note top of wall elevations (defined as where the finished grade intersects the back of the wall face) at all horizontal and vertical break points and at least every 50 feet along the wall face; top of leveling pad elevations at all steps and at least every 50 feet along the wall face; length, type and size of soil reinforcement; location of changes in soil reinforcement embedment length and type; original and final ground lines; and applied bearing pressure.

      b. Plan views of the walls must note the offsets from the construction centerline to the

wall reference line at all changes in horizontal alignments and beginning and ending stations of the wall. The location and size of any obstructions/appurtenances that are behind, in front of, under, mounted upon, or passing through the wall (i.e. drainage structures, traffic barrier, utilities, abutments, piers, piles, or guardrail posts or other items shown on the plans) must also be clearly shown.

c. Typical cross sections showing the relationship between existing ground elevations and proposed grades, construction limits, excavation limits and fill requirements. Include obstructions/appurtenances that are behind, in front of, under, mounted upon, or passing through the wall such as drainage structures, traffic barrier, utilities, abutments, piers, piles, guardrail posts or other plan items.

d. Construction and material specification notes.

e. Horizontal and vertical curve data for laying out and constructing the walls.

f. Summary of material quantities on the elevation sheet of each wall.

2. Detail sheets for each wall showing the following:

a. Leveling pad details showing elevations and dimensions at all steps for the full length of the wall.

b. Details showing all dimensions necessary to construct the welded wire forms and the location of soil reinforcement connection elements. Include position tolerances for connection elements in the details.

c. Parapet barriers, curbs, sidewalks, etc. to be placed on top of the wall.

d. Construction around obstructions/appurtenances that are behind, in front of, under, mounted upon, or passing through the wall such as drainage structures, traffic barrier, utilities, abutments, piers, piles, guardrail posts or other items shown on the plans. Show details for diverting reinforcement elements around obstructions for each specific occurrence.

e. Foundation underdrains and impervious membrane details as required.

Materials

The basis of acceptance for all materials not addressed by the CAA 2025 or MDOT 2020 Standard Specifications nor specified herein will be a Test Data Certification in accordance with the MDOT *Materials Quality Assurance Procedures (MQAP) Manual*. Provide all test data certifications to the Engineer prior to material use.

1. Wire Facing Unit. Fabricate from cold drawn steel wire in accordance with *AASHTO M32* and welded into the finished configuration in accordance with *AASHTO M55*. Galvanize after wire mesh is fabricated in accordance with *AASHTO M111*. The wire facing unit does not need to be galvanized if it is part of a completely independent temporary wall in service for 7 months or less (and not through the Seasonal Suspension).

2. Inextensible Soil Reinforcement. Galvanize steel inextensible soil reinforcement for permanent walls in accordance with *AASHTO M111* for strip-type or *ASTM A641* for grid-type. Galvanize soil reinforcement for temporary walls in accordance with *AASHTO M111* for strip-type or *ASTM A641* for grid-type where the reinforced soil mass for the temporary wall overlaps the reinforced soil mass for a permanent wall or when specified by the Designer.

   A. Strip-Type. Ensure steel strip reinforcement is hot rolled to the required shape and dimensions. The steel must conform to *ASTM A572*, Grade 65.

   B. Grid-Type. Fabricate soil reinforcement and connectors from cold drawn steel wire in accordance with *AASHTO M32* and welded into the finished configuration in accordance with *AASHTO M55*. Perform galvanization after grid is fabricated.

   C. Provide a General Certification in accordance with the *MQAP Manual* that all soil reinforcement components have been inspected to ensure they are true to size and free from defects that may impair their strength and durability.

3. Bolts, Nuts, and Washers. Use galvanized high strength bolts and hardware in accordance with subsection 906.07 of the MDOT 2020 Standard Specification for Construction. *ASTM A449* bolts galvanized in accordance with subsection 906.07 are also acceptable.

4. Geosynthetic (Extensible) Soil Reinforcement. Furnish uniaxial geogrids (higher strength in the reinforcing direction) for primary extensible reinforcement. Geosynthetic Reinforcement shall be manufactured with high-tenacity polyester (PET) or high-density polyethylene (HDPE) in a grid structure. No high strength geotextiles are allowed. The geosynthetic reinforcement must meet the long-term design strength, soil interaction, and connection capacity requirements as required by the design of the MSE slope.

   A. Geosynthetic Reinforcement – The geosynthetic strength used in the design shall follow FHWA NHI-00-043 where:

$$T_{Allowable} = \frac{T_{Ultimate}}{RF \times FS} = \frac{T_{Ultimate}}{RF_{CR} \times RF_{ID} \times RF_{D} \times FS}$$

   B. T_{ult} shall be the minimum average roll value (MARV) ultimate tensile strength per ASTM D4595.

   C. RF_{cr}, Creep Reduction Factor shall be extrapolated to a 100-year design life using ASTM D 6992, accelerated tensile creep and creep rupture of geosynthetic materials based on time temperature superposition using the stepped isothermal method.

   D. RF_{id}, Installation Damage reduction factor, shall be obtained from construction damage tests for each product proposed for use with project specific, representative or more severe backfill and construction techniques. The backfill soil used, if other than project specific, shall have a D50>0.6mm (No. 30 sieve). Testing shall be consistent with ASTM D5818. Default RF_{id} value of 3.0 shall be used if such testing has not been conducted. The minimum RF_{id} allowed shall be 1.10.

E. RF_d, Durability reduction factor, is the combined partial factor for potential biological and chemical degradation. A default RF_d of 2.0 shall be used if durability testing has not been conducted. The minimum RF_d allowed shall be as follows:

1) PET 1.1
2) HDPE 1.1

F. Direct Sliding Coefficient, C_{ds} value shall be determined from pullout tests per GRI:GS-6. The maximum pullout force used to determine C_{ds} shall be limited to the lesser of Ta or the force that yields 1.5 inches displacement. The minimum C_{ds} value shall not be greater than 0.8 where the C_{ds} value is determined as follows:

$$C_{ds} = \frac{F}{L\sigma_N \tan\Phi}$$ Where

Φ = Effective Soil Friction Angle, Degrees

σ_N = Effective Normal Stress (psf) at range from 500 to 1000 psf

F = Maximum shear resistance from direct shear test (lb/ft), per GRI:GS-6

L = Geosynthetic Embedment Length in Test (ft)

G. Soil/Geosynthetic Interaction Coefficient, C_i value shall be obtained from pullout tests per GRI:GG-5. The maximum pullout force used to determine C_i shall be limited to the lesser of Ta or the force that yields 1.5 inches displacement. The minimum C_i value in silty sand shall be 0.8 where the C_i value is determined as follows:

$$C_i = \frac{F}{2Le\sigma_N \tan\Phi}$$ Where

σ_N = Effective Normal Stress (psf) at range from 500 to 1000 psf

F = Pullout force (lb/ft), per GRI:GG-5

Le = Geosynthetic Embedment Length in the Anchorage Zone in Test (ft)

Φ = Effective Soil Friction Angle, Degrees

H. Geogrid shall have minimum junction strength of 40 pounds per foot per GRI:GG2. If this minimum value is not met, then the geogrid shall have a minimum mass of 8 oz/sy and meet the strength requirements of AASHTO M-288-96 Class 1 geotextile.

I. All reinforcement shall have a minimum stiffness (flexural rigidity) of 30,000 mg-cm per ASTM D1388.

J. Polymer reinforcement shall be coated with a suitable coating providing impregnation into the bundles.

K. PET geosynthetics shall possess a Molecular Weight greater than or equal to 25,000 grams/mole as per GRI:GG8 and a carboxyl end group number less than or equal to 30 as per GRI:GG7. Otherwise, a minimum value of RF_d=2.0 shall be used.

L. HDPE geogrids shall possess a melt flow index value greater than or equal to 0.88. Otherwise, HDPE geogrids shall use a minimum RF_d=2.0 value.

5. Geotextile Behind Wall Face Stone Fill. Furnish a non-woven geotextile that meets the physical requirements for a geotextile liner in accordance with Table 910-1 in the MDOT 2020 Standard Specification for Construction.

6. Welded Wire Form Unit Lining. Furnish HDPE or PET biaxial geogrids according to the Manufacturer design for face stone retention within the welded wire form units.

7. Wall Face Stone. Furnish hard, durable 100 percent crushed limestone rock that is resistant to weathering and free of organic and spoil material. Wall face stone material shall conform to the following properties.

	Minimum	**Maximum**
Unit mass of a filled basket	95 pcf	105 pcf
Gradation dimension	1 inch	4 inches

The Contractor shall supply a written Certificate of Compliance that the wall face stone material meets the properties specified above and section 916 of the MDOT 2020 Standard Specifications for Construction.

8. Backfill for the Reinforced Soil Mass. Provide granular material Class II meeting the requirements of section 902 of the MDOT 2020 Standard Specifications for Construction and the requirements contained in Table 2 for Granular Backfill. Acceptance will be based on testing by the Engineer. Do not use slag materials, recycled PCC, or lightweight cellular concrete.

Prior to sampling and testing by the Engineer, provide current test results from an *AASHTO* accredited independent testing laboratory (valid for 2 years from completion of testing) for the granular material that is proposed to be used as backfill for the reinforced soil mass.

Use Granular Backfill for permanent and temporary walls. Use only natural mineral aggregate for backfill within the reinforced soil mass that is free from organic materials and is substantially free of shale or other soft, poor durability particles and that has a magnesium sulfate soundness loss of less than 30 percent after 4 cycles.

Granular Backfill will be sampled and tested by the Engineer in accordance with the requirements for granular material Class II specified in the *MQAP Manual.*

9. Leveling Pad. Use 21AA gradation aggregate according to section 902 of the MDOT 2020 Standard Specifications for Construction.

Table 2: Granular Backfill Requirements

Property	Test Method	Requirement
Organic Content	*AASHTO T267*	1 percent (maximum)
Resistivity (c)	*AASHTO T288*	30 ohm-m (minimum)
pH	*AASHTO T289*	5-10
Sulfates (a)(c)	*AASHTO T290*	200 ppm (maximum)
Chlorides (a)(c)	*AASHTO T291*	100 ppm (maximum)
Plasticity Index	*AASHTO T90*	6 (maximum)
Angle of Internal Friction (b, d, e)	*AASHTO T236 (Direct Shear Test)*	32 degrees (minimum)

a. If the resistivity is greater than or equal to 50 ohm-m, the chloride and sulfate requirements are waived. Alternate test method *ASTM D4327* may be used to determine sulfate and chloride concentrations.
b. Use material passing the #4 sieve compacted to 95 percent of the maximum unit weight of material passing the #4 sieve as determined by the *One-Point Michigan Cone Test* at optimum moisture content. No testing is required for backfills where 80 percent of sizes are greater than 0.75 inches.
c. If Granular Backfill is used for a completely independent temporary wall then this property does not need to be tested.
d. Determine the angle of internal friction by fitting the best fit line through the points. Do not force line through a cohesion of 0 psf. Do not use a negative cohesion in the best fit line.
e. The confining pressures should be representative of the range of anticipated vertical pressures.

Construction

Construct in accordance with the approved working drawings and as specified below:

A. Subgrade Preparation. Excavate a level grade to the necessary elevation for a width equal to the reinforced soil mass plus 3 feet. Inspect the subgrade and compact, if necessary, prior to wall construction in accordance with subsection 205.03.I.1 of the MDOT 2020 Standard Specifications for Construction. Undercut unsuitable material as directed by the Engineer and replace 21AA aggregate compacted to 95 percent of its maximum unit weight in accordance with section 205 of the MDOT 2020 Standard Specification for Construction unless otherwise directed by the Engineer. Ensure frost susceptible foundation soils within 5 feet of the wall face are removed and replaced in the same manner as undercut soils. Sound earth is not permitted as an alternate material for backfilling undercut soils within the region of influence below the reinforced soil mass.

B. Leveling Pad. Construct the leveling pad in accordance with the working drawings and section 206 of the MDOT 2020 Standard Specification for Construction.

C. Wall Erection. Provide an on-site technical representative from the Manufacturer, as necessary or as requested by the Engineer, during the wall erection to assist the Contractor and Engineer. Provide the Engineer with a copy of the Manufacturer's construction manual prior to erection.

1. Place facing units so that their final position is vertical or battered as shown on the working drawings. Handle welded wire facing units during erection by means of lifting devices connected to the upper edges of the unit. Place units in successive horizontal lifts in the sequence shown on the working drawings as backfill placement proceeds.

Place a strip of geotextile behind wall face stone. Lap fabric joints a minimum of 4 inches. Use temporary wedges or bracing to maintain the position of units as backfill is placed in accordance with the Manufacturer's recommendations. Do not exceed 0.75 inch per 10 feet of vertical and/or horizontal wall misalignment. Do not exceed 0.75 inches of offset in any unit joint during construction. Do not exceed 0.2 inch per foot for the overall vertical tolerance of the wall (top to bottom). Correct any misalignment or distortion of the facing units in excess of the tolerances specified herein at no cost to the City of Ann Arbor.

Do not exceed 3 inches of vertical and/or horizontal wall misalignment for wire face walls. Remove and re-erect wire facing units, at no cost to the City of Ann Arbor and no additional time, if the wire face wall exceeds 3 inches of vertical and/or horizontal wall misalignment.

2. Place soil reinforcement in accordance with the details on the working drawings and around any obstruction. If the obstruction conflicts with placement of the soil reinforcement perpendicular to the wall face, follow the alternatives listed in *LRFD 11.10.10.4*. Reinforcement may be splayed a maximum of 15 degrees horizontally and/or vertically to avoid and provide adequate clear space around obstructions. The splay angle is measured from a perpendicular line to the wall face.

3. Uniformly tension soil reinforcement to remove any slack in the connection or material. Compact backfill beneath each layer of soil reinforcement prior to placement of soil reinforcement.

D. Granular Backfill Placement for Reinforced Soil Mass.

1. Follow erection of each course of wire facing units closely with backfill. Place backfill near the rear and middle of the reinforced soil mass first and work toward the facing units. Carefully place backfill to avoid damaging or disturbing the wall materials or soil reinforcement. Remove and replace, at no cost to the City of Ann Arbor, any damaged or misaligned wall materials and soil reinforcement as a result of the backfill placement. Place backfill at each soil reinforcement level to an elevation 1 inch above the level of the connection to eliminate voids beneath the soil reinforcement.

2. Prior to completing backfill, place biaxial geogrid along the wire form facing. Place wall face stone within the geogrid wrapped wire form. Place a geotextile liner strip completely covering the wall facing stone, separating the open graded aggregate from the granular backfill. Lap fabric joints 12 inches minimum.

3. Compact backfill to 95 percent of its maximum unit weight. For applications where spread footings are used to support bridge or other structures, compact backfill to 100 percent of its maximum unit weight within the limits of 1V:1H slopes spreading outward in all directions from the bottom edge of the structure footings for a depth of 5 feet below the footing elevation.

4. Ensure uniform moisture content throughout each layer of the backfill prior to and during compaction. Place backfill with a moisture content less than or equal to the optimum moisture content. Remove and rework backfill placed with moisture content in excess of the optimum moisture content until the moisture content is uniformly acceptable to the

Engineer throughout the entire lift.

5. Place backfill in lifts measuring not more than 12 inches in thickness. Decrease the maximum lift thickness as required to obtain the specified density.

6. Perform compaction within 3 feet of the face of the wall by making at least three passes with a lightweight mechanical tamper, roller, or vibratory system. Density testing will not be performed within this 3-foot zone.

7. Slope the last lift of backfill away from the wall facing at the end of each day's operation to rapidly direct runoff away from the wall face. Do not allow surface runoff from adjacent areas to enter the wall construction site. Control/redirect surface runoff away from the top of wall, bottom of wall, Granular Backfill, wall face and sides of the wall.

8. Do not use sheep's foot or grid-type rollers for compaction within the reinforced soil mass.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
DS_Mechanically Stabilized Earth Wall, Welded Wire Form, Furn and Install	Square Foot
DS_Granular Backfill	Cubic Yard

1. **DS_Mechanically Stabilized Earth Wall, Welded Wire Form, Furn and Install** will be measured in place as the area from the top of the wall to the bottom of the wall (top of leveling pad) along the wall. **DS_Mechanically Stabilized Earth Wall, Welded Wire Form, Furn and Install** includes the design, furnishing all wall components including, but not limited to leveling pad, wire facing units, special corner units, soil reinforcement, connection devices and hardware, geotextiles, geogrids, and face stone (welded wire form unit fill).

2. **DS_Granular Backfill** includes furnishing, placing, and compacting the backfill. The Engineer will not measure material placed outside the maximum pay limits shown on the approved working drawings.

Underdrains will be paid for separately in accordance with the CAA 2025 Standard Specification for Construction.

Earth Excavation and **Embankment** required for undercutting unsuitable subgrade soils will be paid for separately in accordance with the CAA 2025 Standard Specification for Construction. The bottom of the reinforced soil mass and the bottom of the leveling pad will be considered the bottom of footing for measurement purposes.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
RIPRAP

AA/SDA:APL 1 of 1 12/09/25

Description

This work shall consist of furnishing and installing riprap as shown on the construction plans per the requirements of the City of Ann Arbor (CAA) 2025 Standard Specifications for Construction and the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, as directed by the Engineer, and as specified herein.

Materials

Provide natural stone riprap in accordance with Article 8 of the 2025 CAA Standard Specifications for Construction and Section 916 of the MDOT 2020 Standard Specifications for Construction.

Construction

Perform work in accordance with Article 10 of the 2025 CAA Standard Specifications for Construction, Section 813 of the MDOT 2020 Standard Specifications for Construction and the Michigan Department of Environment, Great Lakes and Energy (EGLE) Nonpoint Source Best Management Practices Manual for Riprap-Stabilized Outlet (v2012.12.5):

EGLE Nonpoint Source Best Management Practices Manual - Riprap Stabilized Outlet

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location per the CAA standard pay item for **Riprap, Plain** and **Riprap, Heavy** as applicable and in accordance with Article 11 of the 2025 CAA Standard Specifications for Construction.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
8 INCH POLYVINYL CHLORIDE (PVC) STORM SEWER

Description

This work consists of the furnishing and installation of 8-inch diameter Polyvinyl Chloride (PVC) storm sewer as shown on the plans and per the requirements of the City of Ann Arbor (CAA) 2025 Standard Specifications for Construction.

Materials

Provide 8-inch diameter Polyvinyl Chloride (PVC) meeting the requirements of ASTM D-3034. Acceptable materials are as follows:

- PVC Schedule 40 sewer pipe manufactured in accordance with ASTM D-1785
- SDR 26 PVC sewer pipe manufactured in accordance with ASTM D-2241

Backfill material shall be in accordance with Article 10 of the CAA 2025 Standard Specifications for Construction.

Construction

Complete this work in accordance with the CAA 2025 Standard Specifications for Construction and CAA Standard Detail SD-TD-2.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price per foot using the following pay item:

Pay Item	Pay Unit
DS_8 In., PVC Storm Sewer, SD-TD-2	Foot

Measure **DS_8 In., PVC Storm Sewer, SD-TD-2** per each including furnishing all materials, labor and equipment required to complete the work, as specified.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MODIFIED 24 INCH DIAMETER STORM INLET

Description

This work shall consist of constructing a 24-inch diameter polyvinyl chloride (PVC) storm inlet with ductile iron dome grate where specified on the construction plans. All work shall be in accordance with the City of Ann Arbor (CAA) 2025 Standard Specifications for Construction, Section 403 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, and as specified herein.

Materials

The modified 24-inch diameter storm inlet shall be the Nyloplast Drain Basin with Dome Grate (24-inch diameter) as manufactured by Advanced Drainage Systems (ADS) or approved equal. Drain basin, dome grate, inlet/outlet adapters, and any other hardware or materials required to complete the installation and connections to underdrains or pipes as shown the plans shall be included in the pay item.

Construction

Installation and backfill shall be per the manufacturer's requirements and the City of Ann Arbor (CAA) 2025 Standard Specifications for Construction.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price at each location using the following pay item:

Pay Item	Pay Unit
DS_Storm Single Inlet, 24 In. Dia., (0-8' deep), Modified	Each

Measure **DS_Storm Single Inlet, 12 In. X 12 In., (0-8' deep)** per each including furnishing all materials, labor and equipment required to complete the work, as specified.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
ACCEPTANCE OF HMA MIXTURES

Description

This special provision provides sampling and testing requirements for local agency projects using the roller method and the nuclear density gauge testing. Provide the hot mix asphalt (HMA) mixture in accordance with the requirements of the standard specifications, except as modified herein.

Materials

Provide aggregates, mineral filler (if required), and asphalt binder to produce a mixture proportioned within the master gradation limits shown in the contract and meeting the uniformity tolerance limits in Table 1.

Table 1: Uniformity Tolerance Limits for HMA Mixtures

Parameter			Top and Leveling Course		Base Course	
Number	Description		Range 1 (a)	Range 2	Range 1 (a)	Range 2
1	% Binder Content		-0.30 to +0.40	±0.50	-0.30 to +0.40	±0.50
2	% Passing	# 8 and Larger Sieves	±5.0	±8.0	±7.0	±9.0
		# 30 Sieve	±4.0	±6.0	±6.0	±9.0
		# 200 Sieve	±1.0	±2.0	±2.0	±3.0
3	Crushed Particle Content (b)		Below 10%	Below 15%	Below 10%	Below 15%

a. This range allows for normal mixture and testing variations. The mixture must be proportioned to test as closely as possible to the Job-Mix-Formula (JMF).
b. Deviation from JMF.

Parameter number 2 as shown in Table 1 is aggregate gradation. Each sieve will be evaluated on one of the three gradation tolerance categories. If more than one sieve exceeds Range 1 or Range 2 tolerances, only the one with the largest exceedance will be counted as the gradation parameter.

The master gradation should be maintained throughout production; however, price adjustments will be based on Table 1. Aggregates which are to be used in plant mixed HMA mixtures must not contain topsoil, clay, or loam.

Construction

Submit a Mix Design and a JMF to the Engineer. Do not begin production and placement of the HMA until receipt of the Engineer's approval of the JMF. Maintain the binder content, aggregate gradation, and the crushed particle content of the HMA mixture within the Range 1 uniformity tolerance limits in Table 1. For mixtures meeting the definition of top or leveling course, field regress air void content to 3.5 percent with liquid asphalt cement unless specified otherwise on HMA application estimate. For mixtures meeting the definition of base course, field regress air void content to 3.0 percent with liquid asphalt cement unless specified otherwise on HMA

application estimate.
Ensure all persons performing Quality Control (QC) and Quality Assurance (QA) HMA field sampling are "Local Agency HMA Sampling Qualified" samplers. At the pre-production or preconstruction meeting, the Engineer will determine the method of sampling to be used. Ensure all sampling is done in accordance with *MTM 313 (Sampling HMA Paving Mixtures)* or *MTM 324 (Sampling HMA Paving Mixtures Behind the Paver)*. Samples are to be taken from separate hauling loads.

For production/mainline type paving, obtain a minimum of two samples, each being 20,000 grams, each day of production, for each mix type. The Engineer will sample and maintain possession of the sample. Sampling from the paver hopper is prohibited. Each sample will be divided into two 10,000 gram parts with one part being for initial testing and the other part being held for possible dispute resolution testing. Obtain a minimum of three samples for each mix type regardless of the number of days of production.

Obtain samples that are representative of the day's paving. Sample collection is to be spaced throughout the planned tonnage. One sample will be obtained in the first half of the tonnage and the second sample will be obtained in the second half of the tonnage. If planned paving is reduced or suspended, when paving resumes, the remaining sampling must be representative of the original intended sampling timing.

Ensure all persons performing testing are Bit Level One certified or Bit QA/QC Technician certified.

Ensure daily test samples are obtained, except, if the first test results show that the HMA mixture is in specification, the Engineer has the option of not testing additional samples from that day.

At the pre-production or preconstruction meeting, the Engineer and Contractor will collectively determine the test method for measuring asphalt content (AC) using *MTM 319 (Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method)* or *MTM 325 (Quantitative Extraction of Bitumen from HMA Paving Mixtures)*. Back calculation will not be allowed for determining asphalt content.

Ensure all labs performing local agency acceptance testing are qualified labs per the *HMA Production Manual and the Michigan Quality Assurance Procedures Manual,* and participate in the MDOT round robin process, or they must be *AASHTO Materials Reference Laboratory* (AMRL) accredited for *AASHTO T30* or *T27*, and *AASHTO T164* or *T308*. Ensure on non-National Highway System (NHS) routes, Contractor labs are made available, and may be used, but they must be qualified labs as previously stated. Contractor labs may not be used on NHS routes. Material acceptance testing will be completed by the Engineer within 14 calendar days, except holidays and Sundays, for projects with less than 5,000 tons (plan quantity) of HMA and within 7 calendars days, except holidays and Sundays, for projects with 5,000 tons (plan quantity) or more of HMA, after the Engineer has obtained the samples. QA test results will be provided to the Contractor after the Engineer receives the QC test results. Failure on the part of the Engineer or the laboratory to provide QA test results within the specified time frame does not relieve the Contractor of their responsibility to provide an asphalt mix within specifications.

The correlation procedure for ignition oven will be established as follows. Asphalt binder content based on ignition method from MTM 319. Gradation (*ASTM D5444*) and Crushed particle content *(MTM 117)* based on aggregate from *MTM 319*. The incineration temperature will be established

at the pre-production meeting. The Contractor will provide a laboratory mixture sample to the acceptance laboratory to establish the correction factor for each mix. Ensure this sample is provided to the Engineer a minimum of 14 calendar days prior to production.

For production/mainline type paving, the mixture may be accepted by visual inspection up to a quantity of 500 tons per mixture type, per project (not per day). For non-production type paving defined as driveways, approaches, and patching, visual inspection may be allowed regardless of the tonnage.

The mixture will be considered out-of-specification, as determined by the acceptance tests, if for any one mixture, two consecutive tests per parameter, (for Parameter 2, two consecutive aggregate gradations on one sieve) are outside Range 1 or Range 2 tolerance limits. If a parameter is outside of Range 1 tolerance limits and the second consecutive test shows that the parameter is outside of Range 2, then it will be considered to be out of Range 1 specification. Consecutive refers to the production order and not necessarily the testing order. Out-of-specification mixtures are subject to a price adjustment per the Measurement and Payment section of this special provision.

Contractor operations will be suspended when the mixture is determined to be out of specification, but contract time will continue to run. The Engineer may issue a Notice of Non-Compliance with Contract Requirements (Form 1165), if the Contractor has not suspended operations and taken corrective action. Submit a revised JMF or proposed alterations to the plant and/or materials to achieve the JMF to the Engineer. Effects on the Aggregate Wear Index (AWI) and mix design properties will be taken into consideration. Production and placement cannot resume until receipt of the Engineer's approval to proceed.

Pavement in-place density will be measured using one of two approved methods. The method used for measuring in-place density will be agreed upon at a pre-production or preconstruction meeting.

Pavement in-place density tests will be completed by the Engineer during paving operations and prior to traffic staging changes. Pavement in-place density acceptance testing will be completed by the Engineer prior to paving of subsequent lifts and being open to traffic.

Option 1 - Direct Density Method

Use of a nuclear density gauge requires measuring the pavement density using the Gmm from the JMF for the density control target. The required in-place density of the HMA mixture must be 92.0 to 98.0 percent of the density control target. Nuclear density testing and frequency will be in accordance with the *MDOT Density Testing and Inspection Manual*.

Option 2 - Roller Method

The Engineer may use the Roller Method with a nuclear or non-nuclear density gauge to document achieving optimal density as discussed below.

Use of the density gauge requires establishing a rolling pattern that will achieve the required in-place density. The Engineer will measure pavement density with a density gauge using the Gmm from the JMF for the density control target.

Use of the Roller Method requires developing and establishing density frequency curves and meeting the requirements of Table 2. A density frequency curve is defined as the measurement

and documentation of each pass of the finished roller until the in-place density results indicate a decrease in value. The previous recording will be deemed the optimal density. The Contractor is responsible for establishing and documenting an initial or QC rolling pattern that achieves the optimal in-place density. When the density frequency curve is used, the Engineer will run and document the density frequency curve for each half day of production to determine the number of passes to achieve the maximum density. Table 5, located at the end of this special provision, can be used as an aid in developing the density frequency curve. The Engineer will perform density tests using an approved nuclear or non-nuclear gauge per the manufacturer's recommended procedures.

Table 2: Minimum Number of Rollers Recommended Based on Placement Rate

Average Laydown Rate, Square Yards per Hour	Number of Rollers Required (a)	
	Compaction	Finish
Less than 600	1	1 (b)
601 - 1200	1	1
1201 - 2400	2	1
2401 - 3600	3	1
3601 and More	4	1

a. Number of rollers may increase based on density frequency curve.
b. The compaction roller may be used as the finish roller also.

After placement, roll the HMA mixture as soon after placement as the roller is able to bear without undue displacement or cracking. Start rolling longitudinally at the sides of the lanes and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the drum. Ensure each required roller is 8 tons minimum in weight unless otherwise approved by the Engineer.

Ensure the initial breakdown roller is capable of vibratory compaction and is a maximum of 500 feet behind the paving operations. The maximum allowable speed of each roller is 3 miles per hour (mph) or 4.5 feet per second. Ensure all compaction rollers complete a minimum of two complete rolling cycles prior to the mat temperature cooling to 180 degrees Fahrenheit (F). Continue finish rolling until all roller marks are eliminated and no further compaction is possible. The Engineer will verify and document that the roller pattern has been adhered to. The Engineer can stop production when the roller pattern is not adhered to.

Measurement and Payment

The completed work, as described, will be measured and paid for using applicable pay items as described in subsection 501.04 of the Standard Specifications for Construction, or the contract, except as modified below.

Base Price is the price established by the Department to be used in calculating incentives and adjustments to pay items and shown in the contract.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 1, but not the Range 2, tolerance limits, that mixture parameter will be subject to a 10 percent penalty. The 10 percent penalty will be assessed based on the acceptance tests only unless the Contractor requests that the 10,000 gram sample part retained

for possible dispute resolution testing be tested. The Contractor has 4 calendar days from receipt of the acceptance test results to notify the Engineer, in writing, that dispute resolution testing is requested. The Contractors QC test results for the corresponding QA test results must result in an overall payment greater than QA test results otherwise the QA tests will not be allowed to be disputed. The Engineer has 4 calendar days to send the dispute resolution sample to the lab once dispute resolution testing is requested. The dispute resolution sample will be sent to an independent lab selected by the Local Agency, and the resultant dispute test results will be used to determine the penalty per parameter, if any. Ensure the independent lab is a MDOT QA/QC qualified lab or an AMRL HMA qualified lab. The independent lab must not have conflicts of interest with the Contractor or Local Agency. If the dispute testing results show that the mixture parameter is out-of-specification, the Contractor will pay for the cost of the dispute resolution testing and the contract base price for the material will be adjusted, based on all test result parameters from the dispute tests, as shown in Table 3 and Table 4. If the dispute test results do not confirm the mixture parameter is out-of-specification, then the Local Agency will pay for the cost of the dispute resolution testing and no price adjustment is required.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 2 tolerance limits, the 10,000 gram sample part retained for possible dispute resolution testing will be sent, within 4 calendar days, to the MDOT Central Laboratory for further testing. The MDOT Central Laboratory's test results will be used to determine the penalty per mixture parameter, if any. If the MDOT Central Laboratory's results do not confirm the mixture parameter is out-of-specification, then no price adjustment is required. If the MDOT Central Laboratory's results show that the mixture is out-of-specification and the Engineer approves leaving the out-of-specification mixture in place, the contract base price for the material will be adjusted, based on all parameters, as shown in Table 3 and Table 4.

In the case that the Contractor disputes the results of the test of the second sample obtained for a particular day of production, the test turn-around time frames given would apply to the second test and there would be no time frame on the first test.

The laboratory (MDOT Central Laboratory or independent lab) will complete all Dispute Resolution testing and return test results to the Engineer, who will provide them to the Contractor, within 13 calendar days upon receiving the Dispute Resolution samples.

In all cases, when penalties are assessed, the penalty applies to each parameter, up to two parameters, that is out of specification.

Table 3: Penalty Per Parameter

Mixture Parameter out-of-Specification per Acceptance Tests	Mixture Parameter out-of-Specification per Dispute Resolution Test Lab	Price Adjustment per Parameter
No	N/A	None
Yes	No	None
	Yes	Outside Range 1 but not Range 2: decrease by 10%
		Outside Range 2: decrease by 25%

The quantity of material receiving a price adjustment is defined as the material produced from the time the first out-of-specification sample was taken until the time the sample leading to the first in-specification test was taken.

Each parameter of Table 1 is evaluated with the total price adjustment applied to the contract base price based on a sum of the two parameter penalties resulting in the highest total price adjustment as per Table 4. For example, if three parameters are out-of-specification, with two parameters outside Range 1 of Table 1 tolerance limits, but within Range 2 of Table 1 limits and one parameter outside of Range 2 of Table 1 tolerance limits and the Engineer approves leaving the mixture in place, the total price adjustment for that quantity of material is 35 percent.

Table 4: Calculating Total Price Adjustment

Cost Adjustment as a Sum of the Two Highest Parameter Penalties		
Number of Parameters Out-of-Specification	Range(s) Outside of Tolerance Limits of Table 1 per Parameter	Total Price Adjustment
One	Range 1	10%
	Range 2	25%
Two	Range 1 and Range 1	20%
	Range 1 and Range 2	35%
	Range 2 and Range 2	50%
Three	Range 1, Range 1 and Range 1	20%
	Range 1, Range 1 and Range 2	35%
	Range 1, Range 2 and Range 2	50%
	Range 2, Range 2 and Range 2	50%

Table 5: Density Frequency Curve Development

Tested by:_____ Date/Time: _____

Route/Location:		Air Temp:
Control Section/Job Number:		Weather:
Mix Type:	Tonnage:	Gauge:
Producer:	Depth:	Gmm:

Roller #1 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #2 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #3 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Summary:_____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HOT MIX ASPHALT (HMA) APPLICATION ESTIMATE

Description

Perform this work in accordance with the requirements of section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, Articles 5, 10 and 11 of the City of Ann Arbor Standard Specification, and as herein specified.

Materials

PAY ITEM	HMA MIX	APPLICATION RATE	ESTIMATED THICKNESS	BINDER PERFORMANCE GRADE	AWI (min)
HMA, 4EL	4EL (leveling)	275 lb/syd	2.5 inches	PG 64-28	N/A
HMA, 5EL	5EL (top)	165 lb/syd	1.5 inches	PG 64-28	260
(1) Hand Patching	4EL or 5EL	Varies maximum = 330 lb/syd	Varies - maximum = 3.0 inches	PG 64-28	260

(1) The Contractor may use alternative top course E mixes for Hand Patching with approval by the Engineer.

Submit mix designs and obtain approval from the Engineer for all HMA mixtures proposed for use.

For hand patching work, use the same HMA mixture respectively as specified for the top course unless otherwise approved by the Engineer.

Use 3.5% as target air void content of for leveling courses, top courses and shoulders paved in the same operation as the leveling and top courses. Use 3% as a target air void content of for base courses and shoulders not paved in the same operation as the leveling and top courses. Use 3% as a target air void content of for shared use paths.

The Performance Grade asphalt binder range for the HMA mixture shall be as noted above. Apply Bond Coat material accordance with the requirements of the Detailed Specification for HMA Paving.

Apply bond coat at a uniform rate between 0.05 and 0.15 gallons per square yard as directed and approved by the Engineer. Bond Coat is not a separate pay item; the HMA items of work for which it applies include payment for furnishing and placing bond coat.

Measurement and Payment

Measure and pay for this work as provided elsewhere in the contract documents.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE SHOULDER GUTTER

Description

This work consists of constructing a concrete shoulder gutter and spillway when called for on the plans including providing and placing a geotextile liner. Ensure all work is completed in accordance with section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and the MDOT R-35 series Standard Detail, except as stated in this special provision, as shown on the plans or in the contract, and as directed by the Engineer.

Materials

Provide materials as described in Section 802.02 of the MDOT 2020 Standard Specifications for Construction in accordance with Divisions 9 and 10 of the City of Ann Arbor (CAA) Standard Specifications for Construction as applicable.

Construction

Construct **DS_Shld Gutter, Con, Det__** in accordance with section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and the MDOT R-35 series Standard Detail.

Measurement and Payment

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

Pay Item	**Pay Unit**
DS_Shld Gutter, Con, Det__	Each

Measure **DS_Shld Gutter, Con, Det__**, of the type specified in place per each and pay for it at the contract unit price, which includes the costs for all labor, equipment, and materials necessary to complete the work according to the MDOT R-35 series Standard Detail and as shown on the construction plans.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
POST HOLE THROUGH CONCRETE

AA/SDA:APL 1 of 1 01/14/26

Description

This work consists of constructing a post hole through concrete for the installation of a steel guardrail post as called for on the plans. Ensure all work is completed in accordance with section 807 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and the MDOT R-60 series Standard Detail, except as stated in this detailed specification, as shown on the plans or in the contract, and as directed by the Engineer.

Materials

Provide materials as described in Section 807.02 of the MDOT 2020 Standard Specifications for Construction in accordance with Section 908 of the MDOT 2020 Standard Specifications for Construction.

Construction

Drill or cut post holes no greater than 1 inch larger than the largest cross-sectional dimension of the post. After drilling or sawing, remove the concrete debris from the hole. Clean and dry the area around the hole. Insert the steel post into the hole and embed it to a depth in accordance with the MDOT R-60 series Standard Detail. Fill the hole around the post with a silicone sealer.

If installing posts in new concrete, the Contractor may form holes before placing the new concrete.

The pay item shall include the construction of the post hole and silicone sealer around the steel post after installation. The cost of the steel post shall be included in pay item for **DS_Guardrail, Type__. __ inch Post**.

Measurement and Payment

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

Pay Item	**Pay Unit**
DS_Post Hole Through Conc	Each

Measure **DS_Post Hole Through Conc**, of the type specified in place per each and pay for it at the contract unit price, which includes the costs for all labor, equipment, and materials necessary to complete the work as required.

Installation of the steel post shall be paid for under the item for **DS_Guardrail, Type__. __ inch Post** and installed in accordance with the MDOT R-60 series Standard Detail and the Detailed Specification for Reconstruct Guardrail.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GUARDRAIL

Description

This work consists of furnishing and installing guardrail of the type and post length where called for on the plans. Ensure all work is completed in accordance with section 807 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and applicable MDOT Standard Details, as shown on the plans or in the contract, as directed by the Engineer and as specified herein.

Materials

Furnish materials in accordance with section 807 of the MDOT 2020 Standard Specifications for Construction. Furnish steel posts of the specified length.

Construction

Construct **DS_Guardrail, Type__, __ inch Post** in accordance with section 807 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and the MDOT R-60 series Standard Detail.

Measurement and Payment

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

Pay Item	**Pay Unit**
DS_Guardrail, Type__, __ inch Post	Foot

Measure **DS_Guardrail, Type__, __ inch Post** of the type specified in place per foot and pay for it at the contract unit price, which includes the costs for all labor, equipment, and materials necessary to complete the work according to the MDOT R-60 series Standard Detail and as shown on the construction plans.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TURF RESTORATION

Description

This work consists of preparing all manicured lawns and slopes on non-freeway projects designated for slope restoration on the plans or by the Engineer, and applying topsoil, fertilizer, seed, and mulch blankets to those areas. Turf establishment shall be in accordance with section 816 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and Standard Plan Series R-100, except as modified herein or otherwise directed by the Engineer.

Materials

The materials and application rates shall meet the requirements specified in subsection 816.02 and section 917 of the MDOT 2020 Standard Specifications for Construction and as specified herein unless otherwise directed by the Engineer.

1. Topsoil Surface: Place 4 inches of topsoil in area disturbed areas designated for restoration. Topsoil shall be free of all stones one inch in diameter or greater.
2. Turf Seed Mixture: Use seed mixture shown in table below. Seed shall be fresh, clean, dry, new-crop seed complying with the AOSA's "Rules for Testing Seed", tested for purity and germination tolerances.

Species/Variety	Mix Proportions (percent by weight)	Purity (percent)	Germination (percent)
Baron Kentucky Bluegrass	25	90	80
Kentucky Bluegrass 98/80	15	98	80
Park Kentucky Bluegrass	15	90	80
Omega III Perennial Ryegrass	20	98	90
Creeping Red Fescue	25	95	90

   Maximum weed content shall be 0.30%.
3. Chemical Fertilizer Nutrient: Use Class A fertilizer.
4. Mulch Blanket: Use excelsior mulch blanket free of chemical additives. The netting thread and anchoring devices must be 100 percent biodegradable. **Use no polypropylene or other non-biodegradable netting**. Provide wood or other biodegradable anchors, at least 6 inches in length, as approved by the Engineer. **Do not use steel wire staples or pins to anchor mulch blankets**.

Construction

Construction methods shall be in accordance with subsections 816.03 and 817.03 of the MDOT 2020 Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time limitations stated in subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Restore all areas as shown on the plans and others disturbed by the Contractor's activity(s) and as identified by the Engineer. Slope restoration includes furnishing and placing topsoil, applying

seed and fertilizer, placing mulch blankets, and watering as necessary for the establishment of turf.
Prior to placing topsoil, grade, shape, compact and assure all areas to be seeded are weed free. Place topsoil to the minimum depth required, to meet proposed finished grade. Spread and rake topsoil to provide a uniform surface free of large clumps, rocks, brush, roots, or other deleterious materials, as determined by the Engineer. Remove any stones greater than or equal to 1 inch in diameter. If the area designated for restoration requires more than the minimum depth of topsoil to meet finished grade, the additional depth must be filled using topsoil. Furnishing and placing this additional material is included in this item of work.

Place topsoil that is weed and weed seed free and friable prior to placing seed. Apply seed mixture and fertilizer to prepared soil surface. Incorporate seed into top ½ inch of topsoil.

Use mulch blanket on all areas designated for restoration unless otherwise directed by the Engineer. Install mulch blanket per the manufacturer's published instructions.

Protect and maintain restored areas to establish a uniform, dense, vigorous, and weed free turf without mounds and/or depressions. Begin maintenance immediately upon completion of restoration work and continue up to final acceptance. This includes, but is not limited to, deposition of additional topsoil, re-seeding, fertilizing, and placement of mulch blankets to address areas damaged by washouts and soil erosion, non-uniform germination and bare spots. It also includes any other work required to correct all settlement, erosion, germination, and establishment issues.

If areas washout and/or erode after completing the work and obtaining approval by the Engineer, make the required corrections to prevent future washouts and erosion and replace the topsoil, fertilizer, seed and mulch as required and directed by the Engineer.

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.

If the Engineer determines weeds cover more than ten percent of the total area of slope restoration, the Contractor will provide weed control in accordance with subsection 816.03.J of the MDOT 2020 Standard Specifications for Construction.

Prior to acceptance, the Engineer will inspect the restored areas to ensure the turf is well established, weed free, in a vigorous growing condition, and contains the species called for in the seeding mixture. If areas do not promote growth, the Contractor will apply new seed, fertilizer and mulch blankets, and water as required.

Upon fulfillment of the above requirements, the Engineer will accept the slope restoration.

Unless otherwise approved by the Engineer, final acceptance will occur no sooner than October 10 of the same year for areas initially restored during the spring (April 15 - June 15) planting season; or no sooner than June 15 of the following year for areas initially restored during the prior summer/fall (after June 15) planting season.

Measurement and Payment

Measure and pay for the completed work, as described, at the contract unit price using the following pay item:

Pay Item	**Pay Unit**
DS_Turf Restoration	Square Yard

Measure **DS_Turf Restoration** area in place by the unit square yard and pay for it at the contract unit price, which price includes the costs for all labor, equipment, and materials necessary to complete the work.

The Contractor will restore areas disturbed by its operations and not required by the Project at its own expense.

The Engineer will not pay for any labor, equipment, and material costs for the Contractor to provide weed control.

The Contractor will repair and/or clean any damage or soiling to signs, fences, trees, pavements, structures, etc. at its own expense.

After initial placement of the slope restoration measures, the Engineer will certify for payment fifty (50) percent of the total quantity placed for each item. The Engineer will certify for payment the remaining fifty (50) percent of the total quantities upon full establishment and final acceptance of any restored area.

CITY OF ANN ARBOR
ENGINEERING

NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

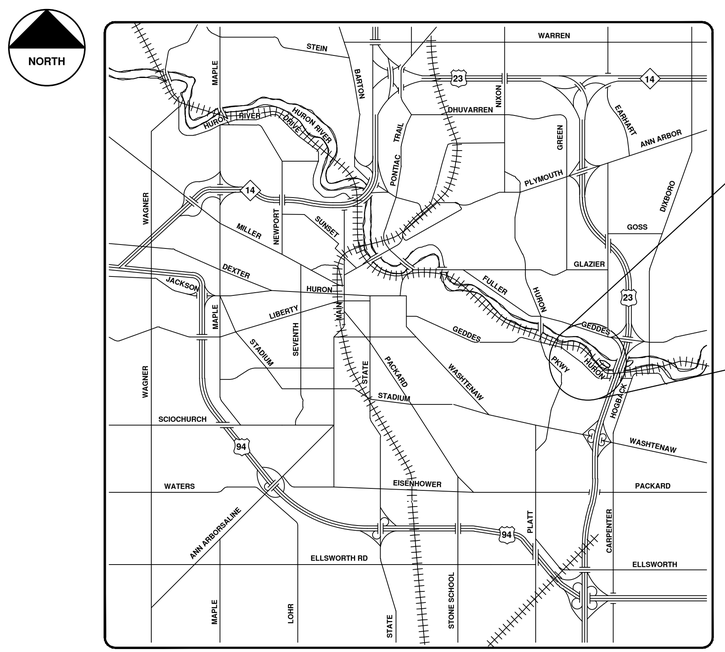
THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 2025 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, IT'S DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.

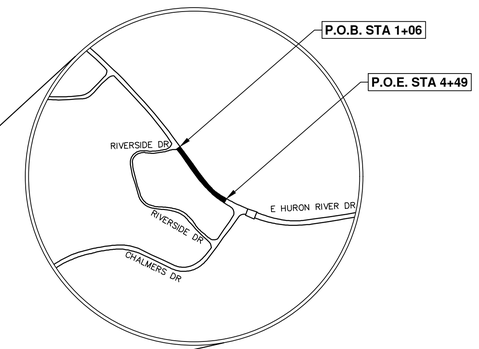
E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

RFP No. 26-02, FILE No. 2025-26

Sheet List Table	
Sheet Number	**Sheet Title**
1	COVER SHEET
2	GENERAL NOTES
3	LEGEND
4	TYPICAL CROSS SECTION
5	REMOVAL AND SESC PLAN
6	RETAINING WALL CONSTRUCTION
7	ROAD CONSTUCTION
8	MAINTENANCE OF TRAFFIC PLAN
9	SOIL BORING MAP AND PROFILE
10	SOIL BORING LOGS 1 TO 3
11	SOIL BORING LOGS 4 TO 7
12	SOIL BORING LOGS 7A TO 11A
13	SOIL BORING LOGS 12 TO 14



VICINITY MAP



TRAFFIC DATA

HURON RIVER RD	2026	2046
A.D.T. (TWO WAY)	5218	6367
% COMMERCIAL	3%	3%
DESIGN SPEED	40 MPH	
POSTED SPEED	35 MPH	

PREPARED UNDER THE SUPERVISION OF

STATE OF MICHIGAN ALAN P. LOEBACH ENGINEER No. 43301 REGISTERED PROFESSIONAL ENGINEER

01 / 14 / 2025
ALAN LOEBACH, P.E. — DATE
PROJECT MANAGER

CITY APPROVAL

STATE OF MICHIGAN JEREMY J. SCHROT ENGINEER No. 59414 REGISTERED PROFESSIONAL ENGINEER

01 / 14 / 2025
JEREMY SCHROT, P.E. — DATE
PROJECT MANAGER

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

811 Know what's below. Call before you dig.

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

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
COVER SHEET

SCALE

DRAWING No. AA23004-1

SHEET No. 1 OF 13

J:\AA\Design\AA23004 - E. Huron River Drive Retaining Wall\DWG\AA23004_Cov.dwg - _a2 standard bw.stb - Plot Date: 1/14/2026 11:41:44 AM

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real property, and the like shall not be blocked except for short durations and only when approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.
2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.
3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.
4. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.
5. During non-working hours no trench shall remain open; any open trench shall be properly secured with protective fencing. This work shall be included in the item of work "General Conditions".
6. Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Public Works requirements.
7. City of Ann Arbor Public Works will install the corporation and copper service lead(s) to transfer the connection(s). If an existing water service is found to be failing or is not copper, the lead will be replaced to the curb box by Public Works.
8. For the installation of corporations, or any other related activities, the Contractor shall not receive additional compensation for delays due to the scheduling of or coordination with the City of Ann Arbor Public Works.
9. The Contractor shall backfill trenches in accordance with Trench Detail specified on plans. This work shall be included in the item of work "Excavate and Backfill for Water Service Tap and Lead". All concrete removals and replacements required for this work will be paid for separately.
10. All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5.
11. Cor-blu bolts to be used at all mechanical water main joints at hydrants and Megalug fittings
12. The Contractor shall construct, flush, and bacteriologically test the water main per Detailed Specification "Water Main Installation and Testing" and as approved by the Engineer. All chlorinated water shall be discharged directly into an approved sanitary sewer. The Contractor shall supply all necessary hoses, fittings and the like to accomplish this work.
13. Water main fittings, other than those specifically listed as separate pay items, which are required to complete the work, such as blow-off assemblies, concrete thrust blocks, solid sleeves and mechanical plugs, shall not be paid for separately, but shall be included in the pipe pay items.
14. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.
15. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.
16. All fittings, hydrants, valves and castings removed during construction are the property of the City of Ann Arbor. The Contractor within 48 hours shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
17. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
18. The Contractor shall be responsible for the continuous maintenance of the temporary road surface and soil erosion control measures within the construction area until the full completion of the project. This work shall be included in the item of work "General Conditions".
19. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
20. Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
21. The location of material stock piles and on-site staging areas to be approved by the Engineer.
22. For mainline paving, the width of the mat for each pass of the paver shall be not less than 10.5' or greater than 15', as directed by the Engineer. The Engineer will direct the layout of the longitudinal joints during construction.
23. All structures shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
24. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
25. Where sewer pipes of different sizes or materials are joined, Fernco flexible couplings with stainless steel shear rings shall be used. The Contractor's purchase price for these devices, including shipping, shall be paid as an extra. Prior to payment for this item, the Contractor shall submit receipts for the Engineer's review and approval. All other costs associated with the installation of these devices shall be included in the payment for the sewer.
26. Where sewer and water main are to be removed & replaced or added, all pipe shall be installed using Trench Detail detailed in the specifications or shown on Plans. Backfill for sewer and water construction shall be MDOT Granular Material, Class II, Modified.
27. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re-set in locations as directed by the Engineer. This work will not be paid for separately, but shall be included in "Machine Grading, Modified"
28. In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD-TD-11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2' below top of proposed pavement.

TEMPORARY SEEDING:

1. SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.
2. ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = $8,026.00

AREA OF PROPOSED DISTURBANCE = 0.41 ACRES

CITY OF ANN ARBOR STANDARDS USED

DRAWING NO.	SHEET TITLE
SD-GU-1	STANDARD CASTING SCHEDULE
SD-GU-7	MANHOLE AND VALVE MOMENT BOX LOWERING
SD-ST-4	PRECAST HIGH CAPACITY INLET
SD-CG-1	BARRIER CURB AND GUTTER
SD-DS-4	SIDEWALK AND CURB & GUTTER JOINTS
SD-SESC-3	SILT FENCE
SD-SESC-4	MULCH BLANKET
SD-SESC-6	STANDARD SESC NOTES
SD-SESC-7	SEQUENCE OF SESC MEASURES
SD-TD-1	UTILITY TRENCH - TYPE I
SD-TD-3.1	UTILITY TRENCH SURFACE RESTORATION EDGE DRAIN

MDOT STANDARDS USED

DRAWING NO.	SHEET TITLE
R-35-E	CONCRETE SHOULDER GUTTER AND SPILLWAY
R-60-J	GUARDRAIL, TYPES A, B, BD, T, TD, MGS-8, & MGS-8D
R-86-F	PRECAST CONCRETE END SECTION FOR PIPE CULVERT

EGLE NPS BMP MANUAL USED

RIRPRAP-STABILIZED OUTLET (V2012.12.5)

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
So	Sloan silt loam, 0 to 1 percent slopes, frequently flooded	0.5	16.1%
StB	St. Clair clay loam, 2 to 6 percent slopes	0.1	3.2%
StE	St. Clair clay loam, 18 to 35 percent slopes	2.0	69.6%
W	Water	0.3	11.1%
Totals for Area of Interest		**2.9**	**100.0%**

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
INDIVIDUAL CONSTRUCTION PERMIT* (FOR DETOUR SIGNS ALONG US-23 AND M-17)	MICHIGAN DEPARTMENT OF TRANSPORTATION (CITY OF ANN ARBOR TO OBTAIN)

* NO COST TO CONTRACTOR

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER SANITARY STORM FORESTRY	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	(734) 794-6350
SIGNS SIGNALS STREET LIGHTS		MARK MORENO (734) 794-6361
FIBER OPTIC	CITY OF ANN ARBOR INFORMATION TECHNOLOGY LARCOM CITY HALL 301 E. HURON STREET ANN ARBOR, MI 48107	(734) 794-6550
PRIVATE UTILITIES	**OWNER**	**CONTACT**
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397-4447
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SOUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	MARC GOODELL (313) 405-0574
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016
FIBER OPTIC	WINDSTREAM 1295 S LINDEN ROAD, SUITE B FLINT, MI 48532	GREG SERICH (810) 244-3500
STREET LIGHTING	DTE ENERGY 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	LANCE ALLEY (734) 397-4188

MISCELLANEOUS QUANTITIES NOT INCLUDED ON FOLLOWING SHEETS

ITEM	QTY	UNIT
General Conditions, Max. $50,000.00	1	LS
Project Supervision, Max. $10,000.00	1	LS
Project Clean-Up and Restoration	1	LS
Digital Audio Visual Coverage	1	LS
Minor Traffic Control, Max $10,000.00	1	LS
Traffic Regulator Control	1	LS
Tree, Rem, 6 In. - 12 In.	2	Ea
Tree, Rem, 13 In. - 19 In.	2	Ea
DS_Clearing	0.2	Ac
Exploratory Excavation, SD-TD-1, (0-10' Deep)	3	Ea
DS_Granular Backfill	1000	Cyd

E. HURON DRIVE RETAINING WALL BENCHMARKS

BM #	STA	OFFSET	ELEV	DESCRIPTION
100	6+15.6	R 27.0'	758.620	WCRC DRAIN DISK IN TOP OF BRIDGE ABUTMENT. LOCATED AT THE SOUTHEAST CORNER OF EAST HURON DRIVE AND CHALMERS DRIVE.
101	1+30.4	R 10.6'	772.125	SET CHISELED X IN THE NORTH RIM OF SANITARY MANHOLE (STRUCTURE #1). LOCATED AT THE SOUTHWEST CORNER OF EAST HURON DRIVE AND RIVERSIDE DRIVE.
102	-1+41.7	L 14.5'	773.265	SET CHISELED X IN THE MIDDLE OF STEEL GUARD RAIL POST. LOCATED ON THE EAST SIDE OF EAST HURON DRIVE AT THE NORTHERLY END OF THE GUARDRAIL.

811 Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

E. HURON RIVER DRIVE RETAINING WALL
REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
GENERAL NOTES

SCALE PLAN: NTS

DRAWING No. AA23004-2

SHEET No. 2 OF 13

J:\AA\Design\AA23004 - E. Huron River Drive Retaining Wall\DWG\AA23004_Cov.dwg - _a2 standard bw.stb - Plot Date: 1/14/2026 11:41:57 AM

EXISTING LEGEND

EX = EXISTING

- FIRE HYDRANT
- GATE VALVE IN BOX
- GATE VALVE IN WELL
- STOP BOX
- WATER VAULT
- WELL
- CATCH BASIN (SQ)
- CATCH BASIN (RD)
- STORM MANHOLE
- NON-CURB CATCH BASIN (SQ)
- END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- POST
- PEDESTRIAN SIGNAL
- SIGN
- HAND HOLE
- ORNAMENTAL LIGHT
- FLOOD LIGHT
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- GAS VALVE
- GAS VENT
- GAS BOX
- ELECTRICAL RISER
- TRANSFORMER
- UTILITY POLE
- LAMP POLE
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX

- WATER MAIN
- WATER MAIN ABANDONED
- STORM SEWER
- STORM SEWER ABANDONED
- SANITARY SEWER
- SANITARY SEWER ABANDONED
- GAS MAIN
- GAS MAIN (DEAD)
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- ELECTRICAL DUCT BANK
- TELEPHONE OVER HEAD
- TELEPHONE UNDER GROUND
- TELEPHONE DUCT BANK
- CABLE TV OVER HEAD
- CABLE TV UNDER GROUND
- FIBER OPTIC
- FIBER OPTIC DUCT BANK
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- CONTOUR MAJOR
- CONTOUR MINOR
- EDGE OF WATER
- FLOODPLAIN
- FENCE
- GRAVEL
- GUARDRAIL
- STONE WALL
- R.O.W.
- TREELINE
- WETLAND
- EDGE OF BRUSH
- HEDGE

- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- SHRUB (DECIDUOUS)
- STUMP
- TREE TO REMAIN & PROTECT (DECIDUOUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10
- TREE TO REMAIN & PROTECT (CONIFEROUS)
  CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREAST HEIGHT (INCHES) X 10

PROPOSED LEGEND

PROP = PROPOSED

- HYDRANT (PLAN)
- WATER GATE WELL
- REDUCER
- WATER GATE VALVE
- WATER STOP BOX
- WATER VAULT
- INLET
- DOUBLE INLET
- INLET JUNCTION CHAMBER
- ROUND CATCH BASIN
- STORM MANHOLE
- DRAIN ARROW
- FLARED END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- BARREL
- SIGN
- PUSH BUTTON
- HAND HOLE

- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- FIBER OPTIC
- ELECTRICAL
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- GRAVEL
- SILT FENCE
- PROTECTIVE FENCE
- GUARDRAIL
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- CONTOUR MAJOR
- CONTOUR MINOR
- WATER EASMENT
- STORM EASEMENT
- SANITARY EASEMENT
- R.O.W.
- LIMITS OF CONSTRUCTION
- LIMIT OF GRADING
- STONE WALL

- DETECTABLE WARNING
- ASPHALT
- CONCRETE
- SIDEWALK
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- TREE TO BE REMOVED (DECIDUOUS)
- TREE TO BE REMOVED (CONIFEROUS)
- STUMP TO BE REMOVED

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

CITY OF ANN ARBOR
PUBLIC SERVICES
301 E. HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SCALE PLAN: NTS

DRAWING No. AA23004-3

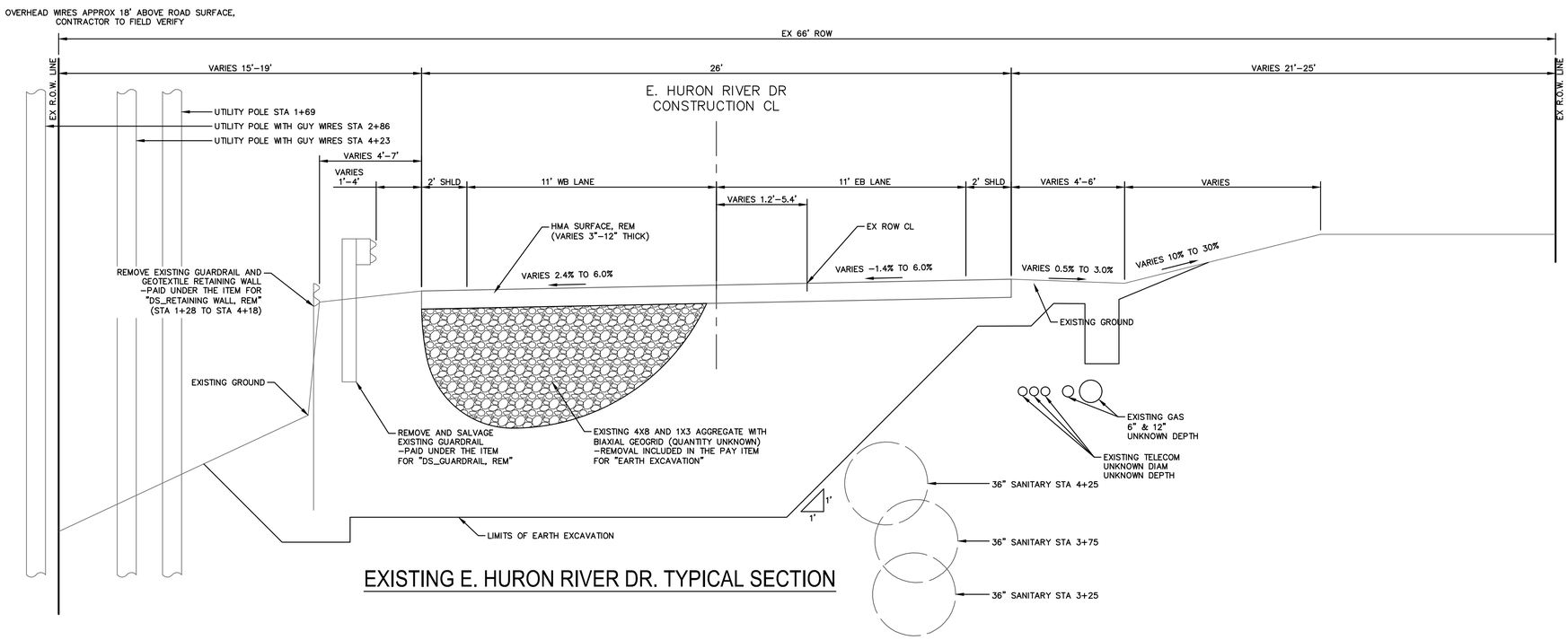
SHEET No. 3 OF 13

E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

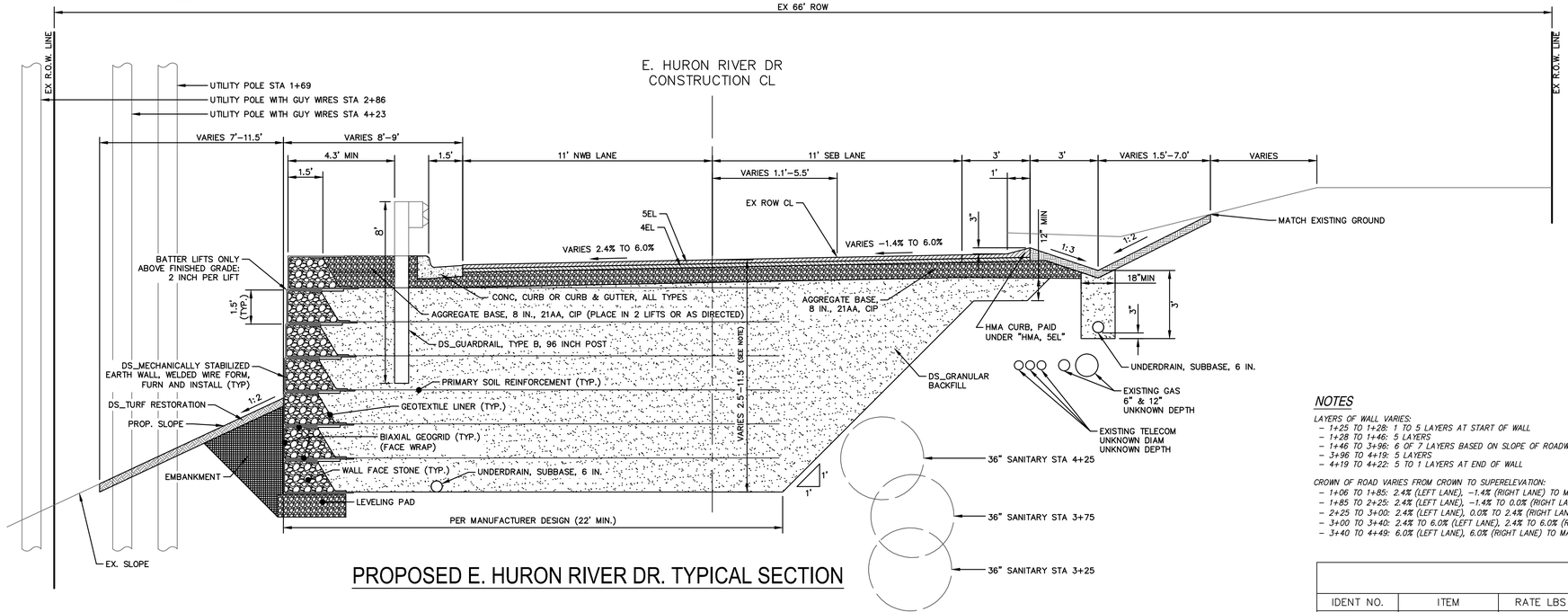
RIVERSIDE DR TO CHALMERS RD

LEGEND

J: \AA \Design \AA23004 – E. Huron River Drive Retaining Wall \DWG \AA23004_Cov.dwg – _a2 standard bw.stb – Plot Date: 1/14/2026 11:42:03 AM



EXISTING E. HURON RIVER DR. TYPICAL SECTION



PROPOSED E. HURON RIVER DR. TYPICAL SECTION

NOTES

LAYERS OF WALL VARIES:
- *1+25 TO 1+28: 1 TO 5 LAYERS AT START OF WALL*
- *1+28 TO 1+46: 5 LAYERS*
- *1+46 TO 3+96: 6 OF 7 LAYERS BASED ON SLOPE OF ROADWAY*
- *3+96 TO 4+19: 5 LAYERS*
- *4+19 TO 4+22: 5 TO 1 LAYERS AT END OF WALL*

CROWN OF ROAD VARIES FROM CROWN TO SUPERELEVATION:
- *1+06 TO 1+85: 2.4% (LEFT LANE), –1.4% (RIGHT LANE) TO MATCH EXISTING*
- *1+85 TO 2+25: 2.4% (LEFT LANE), –1.4% TO 0.0% (RIGHT LANE) TRANSITION RIGHT LANE TO FLAT*
- *2+25 TO 3+00: 2.4% (LEFT LANE), 0.0% TO 2.4% (RIGHT LANE) TRANSITION RIGHT LANE TO MATCH LEFT LANE*
- *3+00 TO 3+40: 2.4% TO 6.0% (LEFT LANE), 2.4% TO 6.0% (RIGHT LANE) TRANSITION TO FULL SUPERELEVATION*
- *3+40 TO 4+49: 6.0% (LEFT LANE), 6.0% (RIGHT LANE) TO MATCH EXISTING*

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
5EL	HMA, 5EL	165	64–28	MAINLINE TOP COURSE – AWI 260
4EL	HMA, 4EL	275	64–28	MAINLINE LEVELING COURSE
	* BOND COAT	0.05–0.15 GAL		

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
TYPICAL CROSS SECTION

SCALE PROFILE: 1" = 3'

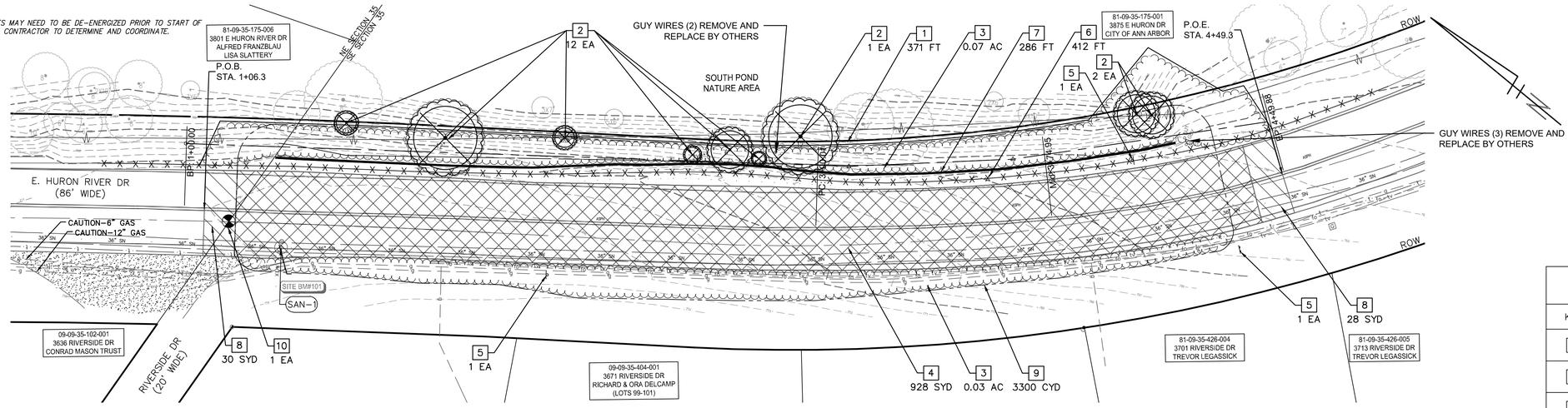
DRAWING No. AA23004-4

SHEET No. 4 OF 13

J:\AA\Design\AA23004 – E. Huron River Drive Retaining Wall\DWG\AA23004_TYP.dwg Dwg Created: 13–Jan–26 – _a2 standard bw.stb – Plot Date: 14–Jan–26

NOTES

OVERHEAD LINES MAY NEED TO BE DE-ENERGIZED PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO DETERMINE AND COORDINATE.



REMOVAL PLAN STA 1+06 TO STA 4+49

REMOVAL HATCH KEY

- HMA SURFACE, REM
- PAVT FOR BUTT JOINTS, REM
- RETAINING WALL, REM
- EROSION CONTROL, SILT FENCE or STRAW WATTLE
- X X X X DS_GUARDRAIL RECONST
- EARTH EXCAVATION LIMIT (UP TO 10' DEPTH)
- DS_CLEARING

REMOVAL KEY

KEY	DESCRIPTION
1	EROSION CONTROL, SILT FENCE
2	TREE, REM, 6 IN. – 12 IN.
3	DS_CLEARING
4	HMA SURFACE, REM
5	SIGN, REM, SALV
6	DS_GUARDRAIL, REM
7	DS_RETAINING WALL, REM
8	DS_PAVT FOR BUTT JOINTS, REM
9	EARTH EXCAVATION
10	MONUMENT BOX, ADJUST

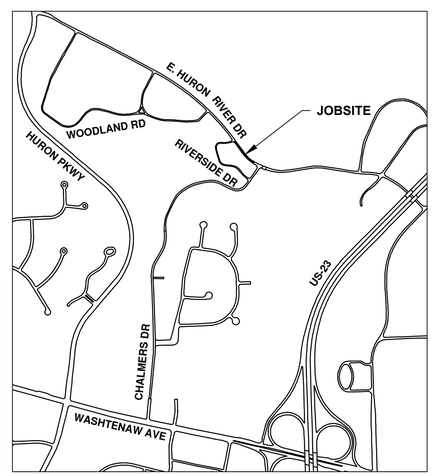
*SAWCUT FULL DEPTH AT REMOVAL LIMITS

TREE REMOVALS

DBH (IN.)	CROWN (FT)	HEALTH	SPECIES	LANDMARK
8	15	GOOD	DECIDUOUS	NO
8	15	GOOD	DECIDUOUS	NO
12	20	GOOD	DECIDUOUS	NO
8	15	GOOD	DECIDUOUS	NO
8	15	GOOD	DECIDUOUS	NO
8	15	GOOD	DECIDUOUS	NO
8	15	GOOD	DECIDUOUS	NO
6	15	GOOD	DECIDUOUS	NO
5	10	GOOD	DECIDUOUS	NO
5	10	GOOD	DECIDUOUS	NO
5	10	GOOD	DECIDUOUS	NO
5	10	GOOD	DECIDUOUS	NO
12	15	GOOD	DECIDUOUS	NO
10	0	DEAD	DECIDUOUS	NO
10	10	FAIR	DECIDUOUS	NO

REMOVAL QUANTITIES – THIS SHEET

ITEM	QTY	UNIT
Erosion Control, Silt Fence	371	Ft
Tree, Rem, 6 In. – 12 In.	15	Ea
DS_Clearing	0.1	Ac
HMA Surface, Rem	928	Syd
Sign, Rem, Salv	3	Ea
DS_Guardrail, Rem	412	Ft
DS_Retaining Wall, Rem	286	Ft
DS_Pavt for Butt Joints, Rem	58	Syd
Earth Excavation	3300	Cyd
Monument Box, Adjust	1	Ea



JOBSITE LOCATION: SCALE 1" = 1000'

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

RIVERSIDE DR TO CHALMERS RD

REMOVAL AND SESC PLAN

SCALE PLAN: 1" = 20'

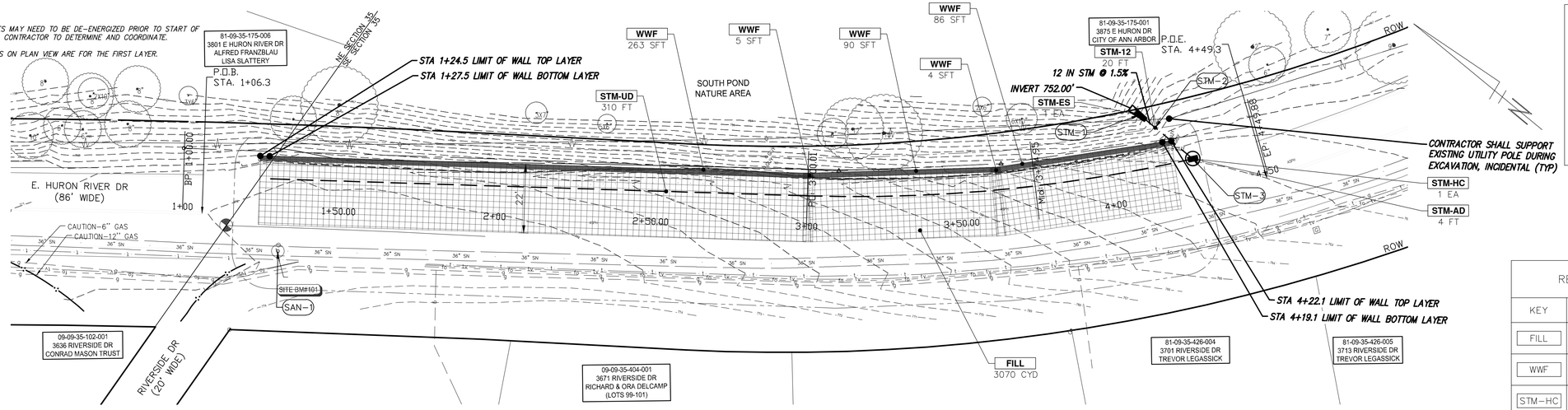
DRAWING No. AA23004-5

SHEET No. 5 OF 13

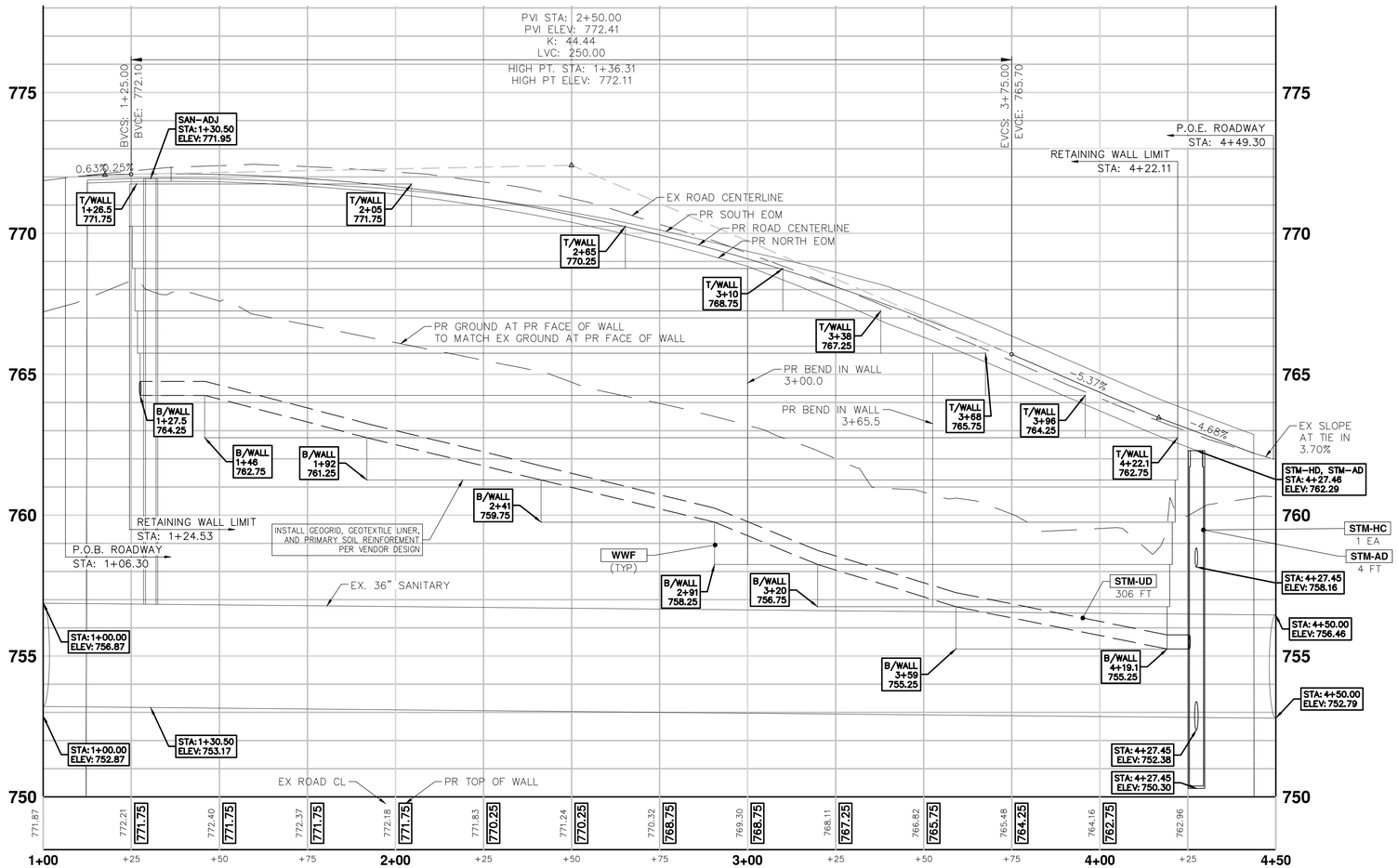
NOTES

OVERHEAD LINES MAY NEED TO BE DE-ENERGIZED PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO DETERMINE AND COORDINATE.

WWF QUANTITIES ON PLAN VIEW ARE FOR THE FIRST LAYER.



RETAINING WALL PLAN STA 1+06 TO STA 4+49



RETAINING WALL PROFILE STA 1+06 TO STA 4+49

RETAINING WALL CON. HATCH KEY

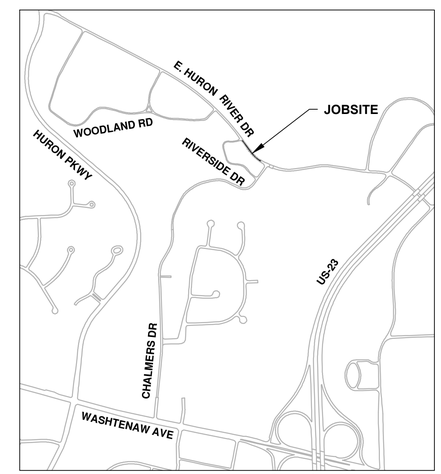
- WELDED WIRE FORM FACING UNIT
- UNIAXIAL GEOGRID
- STORM PIPE
- BACKFILL

RETAINING WALL CONSTRUCTION KEY

KEY	DESCRIPTION
FILL	DS_GRANULAR BACKFILL
WWF	DS_MECHANICALLY STABILIZED EARTH WALL, WELDED WIRE FORM, FURN INSTALL (5-7 LAYERS)
STM-HC	STORM HIGH CAPACITY INLET, 48 IN. DIA., (0-8' DEEP)
STM-AD	STORM HIGH CAPACITY INLET, 48 IN. DIA., ADDITIONAL DEPTH
STM-12	12 IN., CL IV RCP STORM SEWER, SD-TD-1
STM-ES	12 IN., CL IV RCP END SECTION
STM-UD	UNDERDRAIN, SUBBASE, 6 IN.

WALL AND STORM CONSTRUCTION QUANTITIES - THIS SHEET

ITEM	QTY	UNIT
Embankment	88	Cyd
DS_Granular Backfill	3070	Cyd
DS_Mechanically Stabilized Earth Wall, Welded Wire Form, Furn and Install	2849	Sft
12 In., CL IV RCP Storm Sewer, SD-TD-1	20	Ft
12 In., CL IV RCP End Section	1	Ea
Storm High Capacity Inlet, 48 In. Dia., (0-8' deep)	1	Ea
Storm High Capacity Inlet, 48 In. Dia., Additional Depth	4	Ft
Storm Structure Cover	1	Ea
Underdrain, Subbase, 6 In.	310	Ft



JOBSITE LOCATION: SCALE 1" = 1000'

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

RIVERSIDE DR TO CHALMERS RD

RETAINING WALL CONSTRUCTION

SCALE PLAN: 1" = 20'

DRAWING No. AA23004-6

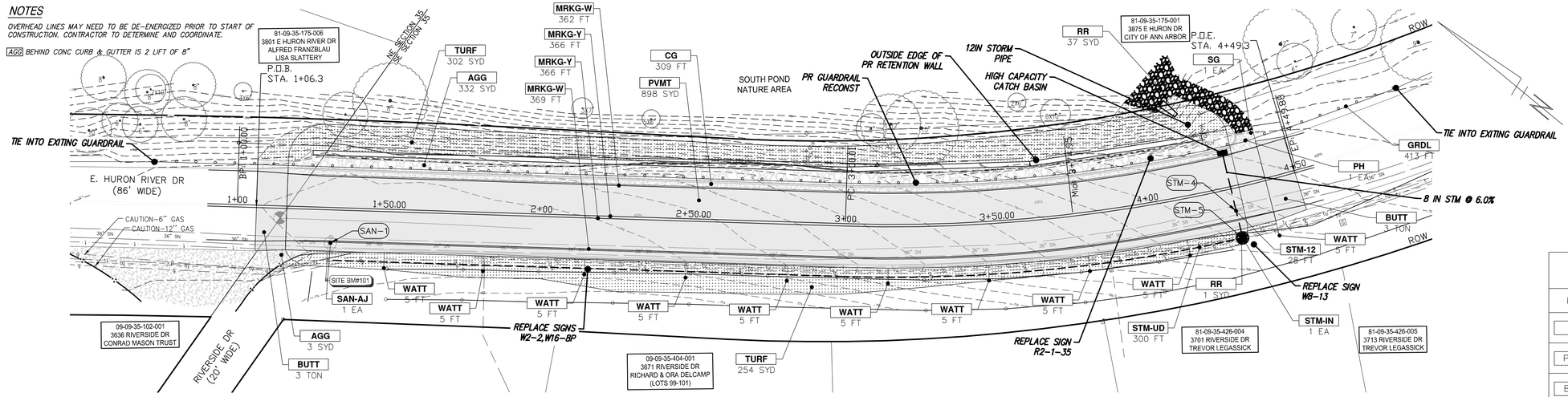
SHEET No. 6 OF 13

J:\AA\Design\AA23004 - E. Huron River Drive Retaining Wall\DWG\AA23004_CON.dwg Dwg Created: 13-Jan-26 - _a2 standard bw.stb - Plot Date: 14-Jan-26

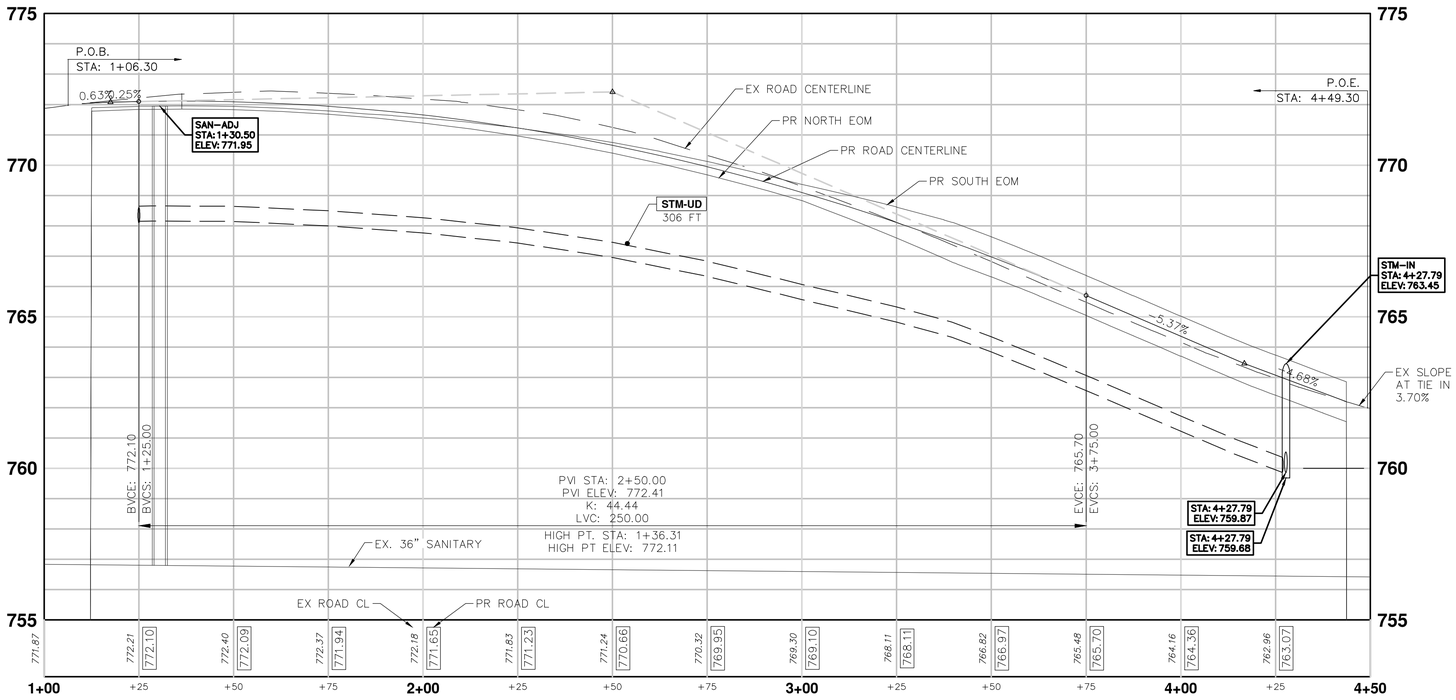
NOTES

OVERHEAD LINES MAY NEED TO BE DE-ENERGIZED PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO DETERMINE AND COORDINATE.

AGG BEHIND CONC CURB & GUTTER IS 2 LIFT OF 8"



ROAD CONSTRUCTION PLAN STA 1+06 TO STA 4+49



ROAD CONSTRUCTION PROFILE STA 1+06 TO STA 4+49

SDANITARY & STORM, STRUCTURE & PIPE TABLE

STRUCTURE OR PIPE NAME	STRUCTURE OR PIPE TYPE	RIM ELEV.	SIZE, DIRECTION, & INVERT ELEV.	COVER TYPE
SAN-1	4' MH	771.95	36" NW 753.80 36" SE 753.80	Q (SD-GU-4)
STM-1	12" ES	752.00	–	–
STM-2	12" RCP Pipe	–	SW 752.38 NE 752.00	–
STM-3	4' MH	762.29	6" NW 755.25 8" SW 758.16 12" NE 752.38	HC (SD-ST-4)
STM-4	8" PVC Pipe	–	SW 759.87 NE 758.16	–
STM-5	2' Inlet	763.45	6" NW 759.87 8" NE 759.87	G

ROAD CONSTRUCTION QUANTITIES – THIS SHEET

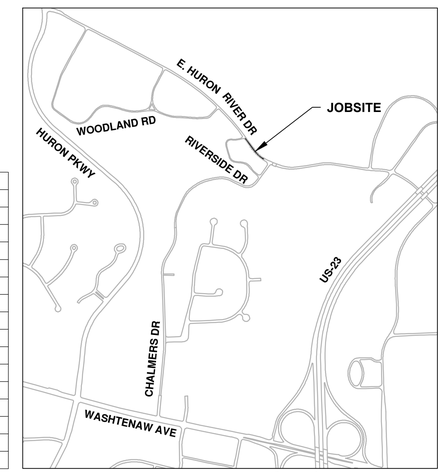
ITEM	QTY	UNIT
DS_Erosion Control, Straw Wattle, 12 In. Dia.	50	Ft
Sanitary Structure Cover, Adjust	1	Ea
DS_8 In., PVC Storm Sewer, SD-TD-2	28	Ft
Riprap, Heavy	38	Syd
DS_Storm Single Inlet, 24 In. Dia., (0-8' deep), Modified	1	Ea
Underdrain, Subbase, 6 In.	300	Ft
Aggregate Base, 8 In., 21AA, CIP	1406	Syd
HMA, 4EL	137	Ton
HMA, 5EL	92	Ton
DS_Shld Gutter, Conc, Det 2	1	Ea
Conc, Curb or Curb & Gutter, All Types	309	Ft
Pavt Mrkg, Polyurea, 4 In., White	731	Ft
Pavt Mrkg, Polyurea, 4 In., Yellow	732	Ft
DS_Post Hole Through Conc	1	Ea
DS_Guardrail, Type B, 96 inch Post	413	Ft
DS_Turf Restoration	580	Syd

ROAD CONSTRUCTION HATCH KEY

- HMA SURFACE
- RIPRAP
- AGGREGATE BASE, 8 IN, 21AA
- TURF RESTORATION
- CONCRETE CURB & GUTTER
- GUARDRAIL RECONST
- STORM PIPE

ROAD CONSTRUCTION KEY

KEY	DESCRIPTION
RR	RIPRAP, HEAVY
PVMT	HMA, 4EL & HMA, 5EL & AGGREGATE BASE, 8 IN., 21AA, CIP
BUTT	HMA, 5EL
GRDL	DS_GUARDRAIL, TYPE B, 96 INCH POST
CG	CONC, CURB OR CURB & GUTTER, ALL TYPES
STM-8	DS_8 IN., PVC STORM SEWER, SD-TD-2
STM-IN	DS_STORM SINGLE INLET, 24 IN. DIA., (0-8' DEEP), MODIFIED
STM-UD	UNDERDRAIN, SUBBASE, 6 IN.
SAN-AJ	SANITARY STRUCTURE COVER, ADJUST
MRKG-W	PAVT MRKG, POLYUREA, 4 IN., WHITE
MRKG-Y	PAVT MRKG, POLYUREA, 4 IN., YELLOW
SG	DS_SHLD GUTTER, CONC, DET 2
PH	POST HOLE THROUGH CONC FOR STEEL POST
TURF	DS_TURF RESTORATION
AGG	AGGREGATE BASE, 8 IN., 21AA, CIP
WATT	DS_EROSION CONTROL, STRAW WATTLE, 12 IN. DIA.



JOBSITE LOCATION: SCALE 1" = 1000'

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

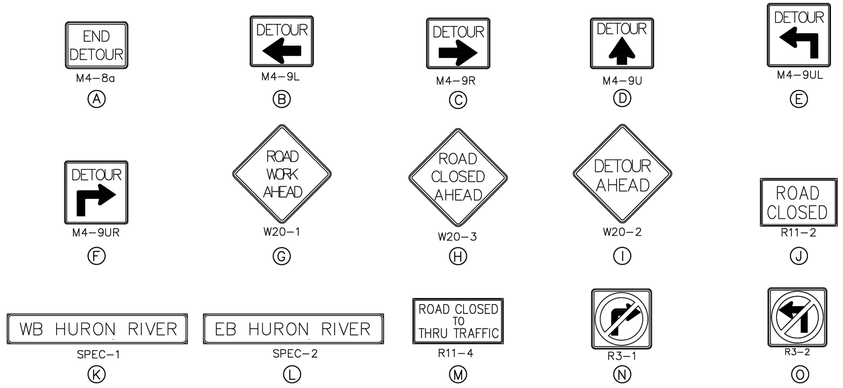
RIVERSIDE DR TO CHALMERS RD

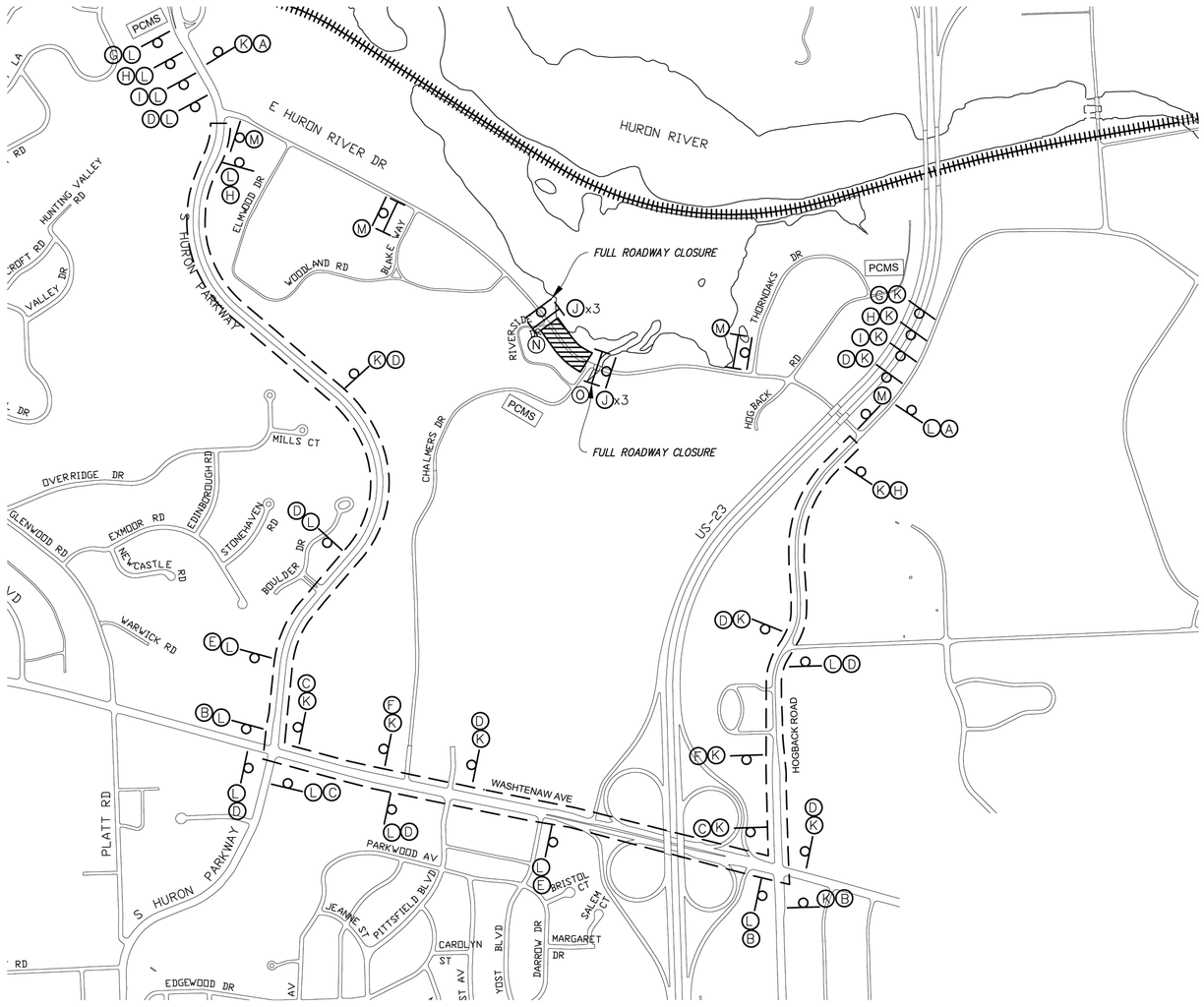
ROAD CONSTUCTION

SCALE PLAN: 1" = 20'

DRAWING No. AA23004-7

SHEET No. 7 OF 13





TRAFFIC QUANTITIES – THIS SHEET

ITEM	QTY	UNIT
Sign, Type B, Temp, Prismatic, Furn & Oper	330.0	Sft
Sign, Type B, Temp, Prismatic, Special, Furn & Oper	120.0	Sft
Barricade, Type III, High Intensity, Lighted, Furn & Oper	12	Ea
Sign, Portable, Changeable Message, Furn & Oper	3	Ea

NOTES

LEAD-IN PLACED AT 450' SPACING.

ADJUST ALL SIGNS AS NECESSARY TO FIT FIELD CONDITIONS.

PORTABLE, CHANGEABLE MESSAGE SIGN LOCATIONS TO BE DETERMINED BY THE CITY OF ANN ARBOR

SIGN, TYPE B, TEMP, PRISMATIC, FURN & OPER – THIS SHEET

SYMBOL	MMUTCD DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
Ⓐ	M4-8a	END DETOUR	30x24	2
Ⓑ	M4-4L	DETOUR (LEFT)	30x24	3
Ⓒ	M4-9R	DETOUR (RIGHT)	30x24	3
Ⓓ	M4-9U	DETROUR (STRAIGHT)	30x24	10
Ⓔ	M4-9UL	DETROUR (STRAIGHT/LEFT)	30x30	2
Ⓕ	M4-9UR	DETROUR (STRAIGHT/RIGHT)	30x30	2
Ⓖ	W20-1	ROAD WORK AHEAD	36x36	2
Ⓗ	W20-3	ROAD CLOSED AHEAD	36x36	4
Ⓘ	W20-2	DETOUR AHEAD	36x36	2
Ⓙ	R11-2	ROAD CLOSED	48X30	6
Ⓜ	R11-4	ROAD CLOSED TO THRU TRAFFIC	60X30	6
Ⓝ	R3-1	NO RIGHT TURN SYMBOL	24X24	1
Ⓞ	R3-2	NO LEFT TURN SYMBOL	24X24	1

SIGN, TYPE B, TEMP, PRISMATIC, SPEICAL, FURN & OPER – THIS SHEET

SYMBOL	MMUTCD DESIGNATION	DESCRIPTION	SIZE (IN)	QTY
Ⓚ	D3-2	WB HURON RIVER DR	12x48	15
Ⓛ	D3-2	EB HURON RIVER DR	12x48	15

LEGEND

- TYPE III BARRICADE
- SIGN
- WORK ZONE
- DETOUR ROUTE
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
03	UPDATE AFTER BIDDERS QUESTIONS	01/14/26	RD	AL / DT
02	CONTINUE REFRESH	12/11/25	RD	AL
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

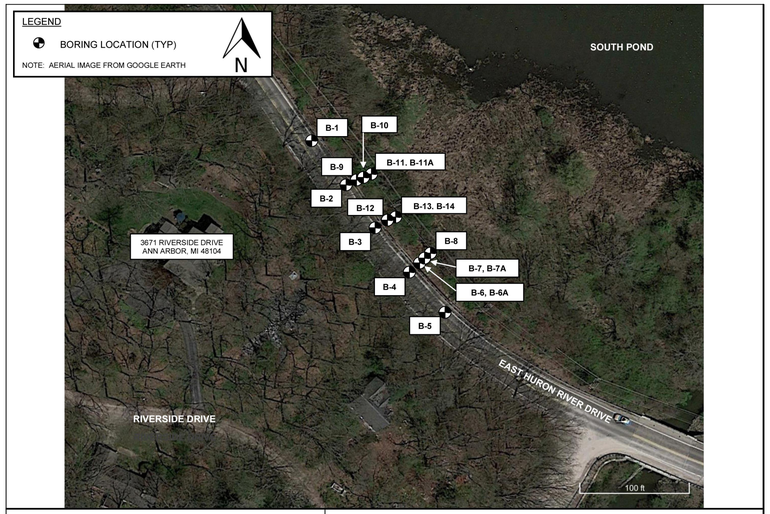
RIVERSIDE DR TO CHALMERS RD
MAINTENANCE OF TRAFFIC PLAN

SCALE PLAN: 1"=600'

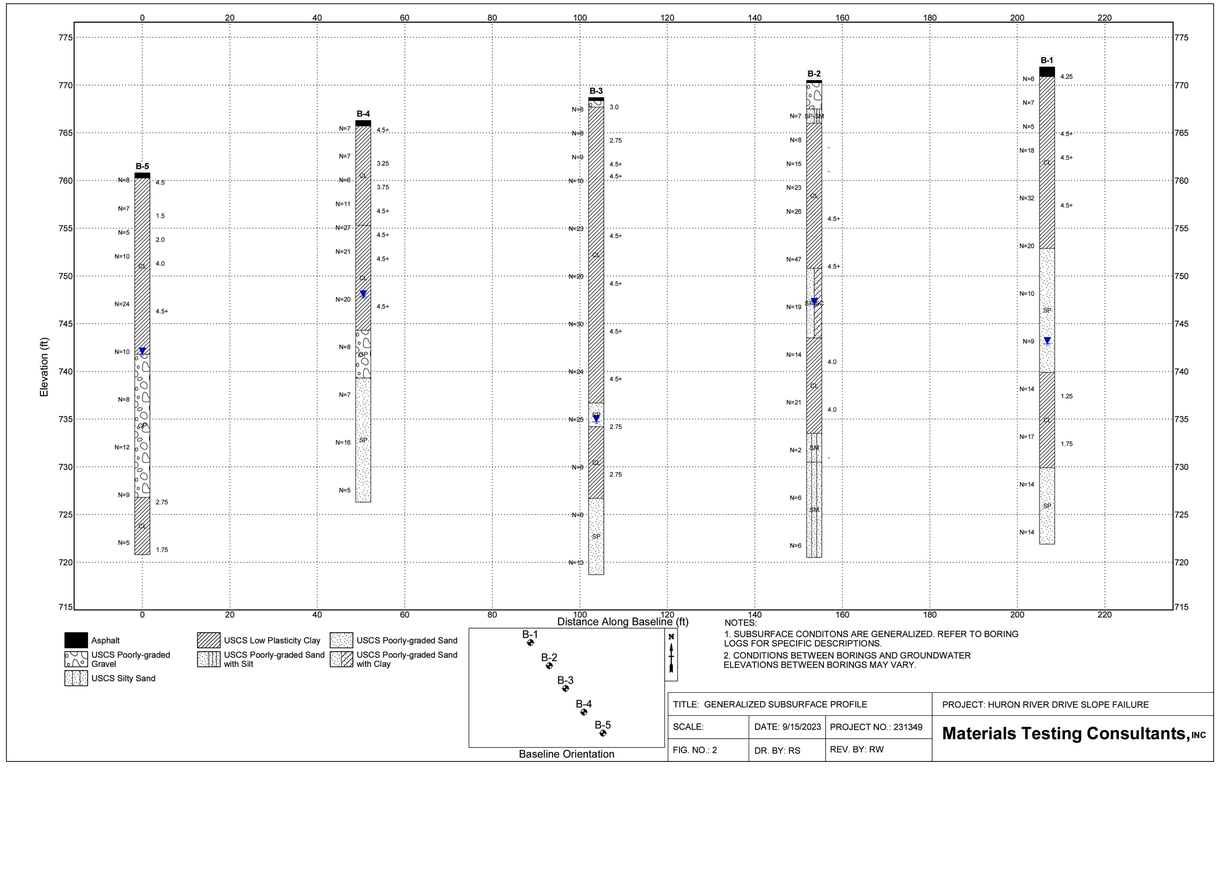
DRAWING No. AA23004-8

SHEET No. 8 OF 13

J:\AA\Design\AA23004 – E. Huron River Drive Retaining Wall\DWG\AA23004_MOT.dwg Dwg Created: 3-May-24 – _a2 standard bw.stb – Plot Date: 14-Jan-26



TITLE: BORING LOCATION PLAN		PROJECT: HURON RIVER DRIVE ANN ARBOR, SLOPE AND WALL FAILURE	
SCALE: AS SHOWN	DATE: 08/31/2023	PROJECT NO.: 231349	MTC MATERIALS TESTING CONSULTANTS
FIG. NO.: 1	DR. BY: JM	REV. BY: RS	



TITLE: GENERALIZED SUBSURFACE PROFILE			PROJECT: HURON RIVER DRIVE SLOPE FAILURE
SCALE:	DATE: 9/15/2023	PROJECT NO.: 231349	**Materials Testing Consultants,** INC
FIG. NO.: 2	DR. BY: RS	REV. BY: RW	

Know what's **below.** **Call** before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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E. HURON RIVER DRIVE RETAINING WALL REPLACEMENT AND ROAD RECONSTRUCTION

RIVERSIDE DR TO CHALMERS RD

SOIL BORING MAP AND PROFILE

SCALE: PLAN: NTS

DRAWING No. AA23004-9

SHEET No. 9 OF 13

LOG OF BORING — B-1 — Sheet: 1 of 2

Project No.: 231349 **Boring No.:** B-1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: 55 LC
Crew Chief: KE Field Eng.: BG Rev. By:RS
Coordinates: N=279878.9 E=13307260.6 (MI South ift)
Elevation: 771.9 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 06/29/2023 Date End: 06/29/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	29.0
Sampler	SPT	2"	End	29.0
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 30.0 ft. Depth Drilled: 50.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
770.9	1					12" HMA 1.0				
769.9	2	S-1	1.2	3-3-3 N=6	CL	Gray lean CLAY; mostly clayey fines, few coarse to fine sand, trace gravel, moist	4.25			
768.9	3									
767.9	4	S-2	0.3	3-3-4 N=7				2.9		S-2, S-3: Poor recovery; possible coarse gravel / COBBLE
766.9	5									
765.9	6									
764.9	7	S-3	1.0	2-2-3 N=5			4.5+	19.6		
763.9	8									
762.9	9									
761.9	10	S-4	1.5	4-8-10 N=18			4.5+	22.2		
760.9	11									
759.9	12									
758.9	13									
757.9	14									
756.9	15	S-5	1.5	9-13-19 N=32	CL	Grades without sand	4.5+	14.0		
755.9	16									
754.9	17									
753.9	18									
752.9	19					19.0				
751.9	20	S-6	1.5	12-10-10 N=20		Brown poorly graded SAND; mostly medium to fine sand, moist				
750.9	21									
749.9	22									
748.9	23									
747.9	24									
746.9	25	S-7	1.5	5-4-6 N=10	SP					
745.9	26									
744.9	27									
743.9	28									
742.9	29									
741.9	30	S-8	1.5	3-4-5 N=9		Grades wet at 29'				
740.9	31									
739.9	32					32.0				
738.9	33					Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, wet				
737.9	34									
736.9	35	S-9	1.5	6-6-8 N=14			1.25	13.2		
735.9	36									
734.9	37				CL					
733.9	38									
732.9	39					Grades gray	1.75	21.9		
731.9	40	S-10	1.5	6-9-8 N=17						

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING — B-2 — Sheet: 1 of 2

Project No.: 231349 **Boring No.:** B-2

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: 55 LC
Crew Chief: KE Field Eng.: JV Rev. By:RS
Coordinates: N=279837.6 E=13307294.2 (MI South ift)
Elevation: 770.5 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 06/28/2023 Date End: 06/28/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	23.5
Sampler	SPT	2"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 23.0 ft. Depth Drilled: 50.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	UCS psf	REMARKS
769.5	1					3" Asphalt patch 0.3				
768.5	2	S-1	1.5	1-WOH		Crushed Limestone Aggregate Base				WOH: Weight-of-Hammer
767.5	3					3.0				
766.5	4	S-2	1.5	5-3-4 N=7	SP-SM	Brown poorly graded SAND with silt and gravel; mostly coarse to fine sand, little coarse to fine gravel, few silty fines, moist 4.5				
765.5	5					Brown lean CLAY; mostly clayey fines, few coarse to fine sand, moist				
764.5	6									
763.5	7	S-3	0.6	4-4-4 N=8			-			
762.5	8									S-3, S-4: Poor recovery; possible coarse gravel / COBBLE
761.5	9									
760.5	10	S-4	0.1	5-7-8 N=15			-			
759.5	11									
758.5	12	S-5	1.5	11-12-11 N=23				23.1		S-5: Atterberg Limits ASTM D4318: LL = 20, PL = 11, PI = 9
757.5	13				CL					
756.5	14									
755.5	15	S-6	1.5	11-12-14 N=26			4.5+	19.3		
754.5	16									
753.5	17									
752.5	18									
751.5	19									
750.5	20	S-7	1.5	11-15-32 N=47		19.7	4.5+	17.4		
749.5	21					Brown poorly graded SAND with clay and gravel, mostly coarse to fine sand, little coarse to fine gravel, few clayey fines, moist				Augers charged with water at 20.0' to 25.0'
748.5	22									
747.5	23									
746.5	24				SP-SC					
745.5	25	S-8	0.8	12-10-9 N=19		Grades wet				
744.5	26									
743.5	27					27.0				
742.5	28					Gray lean CLAY; mostly clayey fines, trace fine gravel, moist				
741.5	29									
740.5	30	S-9	1.5	5-5-9 N=14			4.0	16.0		
739.5	31									
738.5	32									
737.5	33				CL					
736.5	34									
735.5	35	S-10	0.6	10-13-8 N=21		Grades with wet sand seams	4.0	19.6		
734.5	36									S-10: Atterberg Limits ASTM D4318: LL = 29, PL = 13, PI = 16
733.5	37					37.0				
732.5	38					Gray silty SAND; mostly medium to fine sand, some silty fines, wet				
731.5	39				SM					
730.5	40	S-11	0.2	1-1-1 N=2		40.0	-	13.5		

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING — B-3 — Sheet: 1 of 2

Project No.: 231349 **Boring No.:** B-3

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: 55 LC
Crew Chief: KE Field Eng.: BG Rev. By:RS
Coordinates: N=279797.1 E=13307323.3 (MI South ift)
Elevation: 768.7 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 06/29/2023 Date End: 06/29/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	34.0
Sampler	SPT	2"	End	20.0
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 26.0 ft. Depth Drilled: 50.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	UCS psf	REMARKS
767.7	1					4" HMA 0.3				
766.7	2	S-1	1.5	5-4-4 N=8		7" Coarse Aggregate Base 1.0	3.0			
765.7	3					Brown lean CLAY; mostly clayey fines, few coarse to fine gravel, moist				
764.7	4	S-2	1.5	4-4-4 N=8				14.9		
763.7	5						2.75			
762.7	6									
761.7	7	S-3	1.5	2-4-5 N=9		Grades with trace coarse gravel at 5'	4.5+	24.8		
760.7	8									
759.7	9						4.5+			
758.7	10	S-4	1.5	4-7-9 N=16				18.0		
757.7	11									
756.7	12									
755.7	13									
754.7	14									
753.7	15	S-5	1.5	11-11-12 N=23			4.5+	18.7		
752.7	16									
751.7	17				CL					
750.7	18									
749.7	19									
748.7	20	S-6	1.5	8-11-15 N=26			4.5+	18.4		S-6: Poor recovery; possible coarse gravel / COBBLE
747.7	21									
746.7	22									
745.7	23									
744.7	24									
743.7	25	S-7	1.5	8-13-17 N=30			4.5+	17.4		
742.7	26									
741.7	27									
740.7	28									
739.7	29									
738.7	30	S-8	1.5	8-11-13 N=24			4.5+	16.0		
737.7	31									
736.7	32					32.0				
735.7	33					Poorly graded SAND with gravel, mostly coarse to fine sand, little coarse to fine gravel, moist				
734.7	34				SP					
733.7	35	S-9	1.5	28-11-14 N=25		Grades wet at 34' 34.5	2.75			
732.7	36					Brown lean CLAY; mostly clayey fines, trace coarse to fine gravel, moist				
731.7	37									
730.7	38				CL					
729.7	39									
728.7	40	S-10	1.5	5-4-4 N=8		Grades gray with coarse to fine sand	2.75	23.1		

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING — B-1 — Sheet: 2 of 2

Project No.: 231349 **Boring No.:** B-1

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
730.9	41				CL	Gray lean CLAY with sand; mostly clayey fines, little coarse to fine sand, wet 42.0				
729.9	42					Gray poorly graded SAND; mostly coarse to fine sand, moist				
728.9	43									
727.9	44									
726.9	45	S-11	1.5	7-7-7 N=14	SP					
725.9	46									
724.9	47									
723.9	48									
722.9	49									
721.9	50	S-12	1.5	9-7-7 N=14		50.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING — B-2 — Sheet: 2 of 2

Project No.: 231349 **Boring No.:** B-2

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	UCS psf	REMARKS
729.5	41									
728.5	42	U-12	2.0	Shelby						
727.5	43									
726.5	44									
725.5	45	S-13	1.5	3-3-3 N=6	SM	Gray silty SAND; mostly medium to fine sand, some silty fines, wet				Augers charged with water at 45.0'
724.5	46									
723.5	47									
722.5	48									
721.5	49									
720.5	50	S-14	1.5	2-2-4 N=6		50.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING — B-3 — Sheet: 2 of 2

Project No.: 231349 **Boring No.:** B-3

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	UCS psf	REMARKS
727.7	41				CL	Brown lean CLAY; mostly clayey fines, trace coarse to fine gravel, moist 42.0				
726.7	42					Gray poorly graded SAND; mostly medium to fine sand, moist				
725.7	43									
724.7	44									
723.7	45	S-11	1.5	3-3-3 N=6	SP					
722.7	46									
721.7	47									
720.7	48									
719.7	49									
718.7	50	S-12	1.5	7-7-6 N=13		50.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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SOIL BORING LOGS 1 TO 3

SCALE PLAN: NTS

DRAWING No. AA23004-10

SHEET No. 10 OF 13

LOG OF BORING

Project No.: 231349
Boring No.: B-4
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: CME 55
Crew Chief: KE Field Eng.: BG Rev. By: RS
Coordinates: N=279755.0 E=13307355.9 (MI South ift)
Elevation: 766.3 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 06/30/2023 Date End: 06/30/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	18.5
Sampler	SPT	2"	End	18.5
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 21.0 ft.
Depth Drilled: 40.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	UCS pcf	REMARKS
765.3	1					7" HMA (0.6)				
764.3	2	S-1	1.0	3-3-4 N=7	CL	Brown lean CLAY; mostly clayey fines, few coarse to fine gravel, moist	4.5+			S-1, S-8: Poor recovery; possible coarse gravel / COBBLE
763.3	3									
762.3	4									
761.3	5	S-2	1.4	4-4-3 N=7			3.25	8.9		
760.3	6									
759.3	7	S-3	1.3	2-3-3 N=6			3.75	14.7		
758.3	8									
757.3	9									
756.3	10	S-4	1.5	3-5-6 N=11		Grades with trace organics, twigs at 8.5'	4.5+	13.9		
755.3	11					(11.0)				
754.3	12	S-5	1.5	7-12-15 N=27		Brown lean CLAY with sand; mostly clayey fines, little fine sand, moist	4.5+			
753.3	13									
752.3	14	S-6	1.5	9-9-12 N=21	CL		4.5+	11.0		
751.3	15									
750.3	16									
749.3	17									
748.3	18									
747.3	19	S-7	1.5	24-8-12 N=20		Grades with few gravel at 18.5'	4.5+	18.2		
746.3	20					(22.0)				
745.3	21									
744.3	22									
743.3	23									
742.3	24	S-8	1.0	5-4-4 N=8	GP	Poorly graded GRAVEL with sand; mostly coarse to fine gravel, little coarse to fine sand, trace clayey fines, wet		14.4		
741.3	25					(27.0)				
740.3	26									
739.3	27									
738.3	28									
737.3	29	S-9	1.5	4-3-4 N=7		Brown poorly graded SAND with gravel; mostly coarse to fine sand, little fine gravel, trace clayey fines, wet				
736.3	30									
735.3	31									
734.3	32									
733.3	33									
732.3	34	S-10	1.5	9-8-8 N=16	SP					
731.3	35									
730.3	36									
729.3	37									
728.3	38					Grades without gravel at 37.0'				
727.3	39									End of Boring at 40.0'
726.3	40	S-11	1.5	2-2-3 N=5		(40.0)				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-5
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: CME 55
Crew Chief: KE Field Eng.: BG Rev. By: RS
Coordinates: N=279717.5 E=13307389.9 (MI South ift)
Elevation: 760.8 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 06/30/2023 Date End: 06/30/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing	HSA	4 1/4"	During	19.0
Sampler	SPT	2"	End	16.5
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings. Cave in at 20.0 ft.
Depth Drilled: 40.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Penetration (Blows Per 6") ASTM D 1586	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
759.8	1					6 1/2" HMA (0.5)				
758.8	2	S-1	1.0	6-4-4 N=8	CL	Brown lean CLAY; mostly clayey fines, few coarse to fine gravel, moist	4.5			S-1, S-2: Poor recovery; possible coarse gravel / COBBLE
757.8	3									
756.8	4									
755.8	5	S-2	0.8	2-3-4 N=7			1.5	18.6		
754.8	6									
753.8	7	S-3	1.5	3-2-3 N=5		Grades with trace organics and occasional roots	2.0	21.0		
752.8	8									
751.8	9									
750.8	10	S-4	1.5	4-4-6 N=10			4.0	20.7		
749.8	11									
748.8	12									
747.8	13					Grades without organics, without gravel with few fine sand				
746.8	14	S-5	1.5	7-11-13 N=24			4.5+	18.1		
745.8	15									
744.8	16									
743.8	17									
742.8	18									
741.8	19					(19.0)				
740.8	20	S-6	1.5	6-5-5 N=10	GP	Poorly graded GRAVEL with sand; mostly coarse to fine gravel, little coarse to fine sand, trace clay, wet				
739.8	21									
738.8	22									
737.8	23									
736.8	24	S-7	1.5	4-4-4 N=8						
735.8	25									
734.8	26									
733.8	27									
732.8	28									
731.8	29	S-8	1.5	7-7-5 N=12						
730.8	30									
729.8	31									
728.8	32									
727.8	33									
726.8	34					(34.0)				
725.8	35	S-9	1.5	4-5-4 N=9		Gray lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist	2.75			
724.8	36									
723.8	37									
722.8	38				CL					
721.8	39									
720.8	40	S-10	1.5	2-3-2 N=5		(40.0)	1.75	20.4		End of Boring at 40.0'

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-6
Sheet: 1 of 2

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: BG/JV Rev. By: RS
Coordinates: N=279843.3 E=13307307.6 (MI South ift)
Elevation: 765.6 ft Datum: NAVD 88 (GPS Observation)
Notes: Elevations obtained from laser level

Date Begin: 07/13/2023 Date End: 07/14/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.
Depth Drilled: 11.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
765.4	0.25			2		13" Sandy Topsoil (1.1)				Fill: 0.0' to 11.5'
765.1	0.50									
764.9	0.75									
764.6	1.00									
764.4	1.25									
764.1	1.50									
763.9	1.75									
763.6	2.00	A-1			SP	Brown poorly graded SAND with silt; mostly coarse to fine sand, few silty fines, few coarse to fine gravel, moist, Fill				
763.4	2.25									
763.1	2.50			5						
762.9	2.75					(2.8)				
762.6	3.00	A-2				Brown sandy lean CLAY; mostly clayey fines, some coarse to fine sand, moist, Fill	2.0			
762.4	3.25									
762.1	3.50									
761.9	3.75									
761.6	4.00	A-3			CL		2.0			
761.4	4.25									
761.1	4.50									
760.9	4.75									
760.6	5.00					(5.5)				
760.4	5.25					Brown lean CLAY; mostly clayey fines, few coarse to fine sand, moist, Fill				
760.1	5.50									
759.9	5.75									
759.6	6.00	A-4			CL					
759.4	6.25									
759.1	6.50									
758.9	6.75									
758.6	7.00						3.5			
758.4	7.25						1.75			
758.1	7.50					(7.5)				
757.9	7.75	A-5				Brown lean CLAY; mostly clayey fines, few coarse to fine sand, moist, Fill with occasional metal debris				
757.6	8.00									
757.4	8.25									
757.1	8.50									
756.9	8.75									
756.6	9.00									
756.4	9.25									
756.1	9.50									
755.9	9.75									
755.6	10.00					(10.0)				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-6
Sheet: 2 of 2

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
755.4	10.25	A-6					2.0			
755.1	10.50									
754.9	10.75				CL	Brown lean CLAY; mostly clayey fines, few coarse to fine sand, moist, Fill with occasional metal debris				
754.6	11.00									
754.4	11.25									
754.1	11.50					(11.5)				
						End of Boring				Auger refusal at 11.5' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-6A
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By: RS
Coordinates: N=279843.2 E=13307307.6 (MI South ift)
Elevation: 765.6 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/17/2023 Date End: 07/17/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	4.0
Sampler	Hand Auger	3 1/4"	End	4.0
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.
Depth Drilled: 7.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
765.4	0.25					12" Sandy Topsoil (1.0)				Fill: 0.0' to 3.5'
765.1	0.50									
764.9	0.75									
764.6	1.00									
764.4	1.25					Brown poorly graded SAND with silt and gravel; mostly coarse to fine sand, little medium to fine gravel, few silty fines, moist, Fill with aluminum foil fragments, roots and wood debris				
764.1	1.50									
763.9	1.75									
763.6	2.00	A-1								
763.4	2.25									
763.1	2.50				SP-SM					
762.9	2.75									
762.6	3.00									
762.4	3.25									
762.1	3.50					(3.5)				
761.9	3.75					Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, moist				
761.6	4.00	A-2			SP-SC	Grades wet at 4.0'				
761.4	4.25					(4.3)				
761.1	4.50	A-3				Brown lean CLAY; mostly clayey fines, few medium to fine sand, trace of medium to fine gravel, moist				
760.9	4.75									
760.6	5.00						2.5			
760.4	5.25	U-4	0.5							
760.1	5.50									
759.9	5.75				CL					
759.6	6.00	U-5	0.4				2.5			
759.4	6.25									
759.1	6.50									
758.9	6.75									
758.6	7.00					(7.0)				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-7
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JV Rev. By: RS
Coordinates: N=279845.3 E=13307312.9 (MI South ift)
Elevation: 756.9 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/14/2023 Date End: 07/14/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.
Depth Drilled: 1.8 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
756.7	0.25					12" Silty Topsoil with roots (1.0)				
756.4	0.50									
756.2	0.75									
755.9	1.00									
755.7	1.25				SP	Brown poorly graded SAND with clay and gravel; mostly coarse to fine sand, little coarse to fine gravel, few clayey fines, moist				
755.4	1.50									
755.2	1.75					(1.8)				
						End of Boring				Hand Auger refusal at 1.8' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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11/14/25	REFRESH FOR NEW BID CYCLE	AL
01	REVISION	RD

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ANN ARBOR, MI 48107-8647
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REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
SOIL BORING LOGS 4 TO 7

SCALE PLAN: NTS
DRAWING No. AA23004-11
SHEET No. 11 OF 13

Plotted: Jan 14, 2026, 11:44 AM by user: 1179 - Saved: 1/13/2026 by user: 1179
J:\AA\Design\AA23004 - E. Huron River Drive Retaining Wall\DWG\AA23004_SBL.dwg

LOG OF BORING

Project No.: 231349
Boring No.: B-7A
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: JV Rev. By: RS
Coordinates: N=279845.3 E=13307312.8 (MI South ift)
Elevation: 756.9 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/14/2023 Date End: 07/14/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.

Depth Drilled: 1.7 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
756.7	0.25					12" Silty Topsoil				
756.4	0.50									
756.2	0.75									
755.9	1.00					1.0				
755.7	1.25					Brown poorly graded SAND with clay and gravel; mostly coarse to fine sand, little coarse to fine gravel, few clayey fines, moist				
755.4	1.50	A-1			SP	1.7				
						End of Boring				Hand auger refusal at 1.7' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-9
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By: RS
Coordinates: N=279764.8 E=13307368.4 (MI South ift)
Elevation: 761.3 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/18/2023 Date End: 07/18/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	4.0
Sampler	Hand Auger	3 1/4"	End	4.0
Core			Seepage	4.0
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.

Depth Drilled: 7.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
761.1	0.25					8" Clayey Topsoil				Fill: 0.0' to 7.0'
760.8	0.50									
760.6	0.75					0.7				
760.3	1.00					Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, few coarse to fine gravel, moist, Fill with occasional root fragments				
760.1	1.25									
759.8	1.50	A-1				1.5				
759.6	1.75									
759.3	2.00									
759.1	2.25									
758.8	2.50									
758.6	2.75									
758.3	3.00				CL	Grades without root fragments				
758.1	3.25	A-2				2.0				
757.8	3.50									
757.6	3.75									
757.3	4.00					Grades with possible asphalt debris at 3.7'				
757.1	4.25					Grades with wet sand seams at 4.0'				
756.8	4.50									
756.6	4.75									
756.3	5.00					5.0				
756.1	5.25	A-3				Brown lean CLAY; mostly clayey fines, trace medium to fine sand, moist, Fill				
755.8	5.50									
755.6	5.75									
755.3	6.00				CL					
755.1	6.25									
754.8	6.50									
754.6	6.75					Grades with organic inclusions and occasional roots at 6.5'				
754.3	7.00	A-4				7.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-11
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By: RS
Coordinates: N=279770.9 E=13307376.6 (MI South ift)
Elevation: 748.0 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/18/2023 Date End: 07/18/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	1.5
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.

Depth Drilled: 1.7 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
747.8	0.25					20" Dark Brown Clayey Topsoil with roots				
747.5	0.50									
747.3	0.75									
747.0	1.00	A-1								
746.8	1.25									
746.5	1.50					1.7				
						End of Boring				Auger refusal at 1.7' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-8
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: BG Rev. By: RS
Coordinates: N=279847.4 E=13307317.3 (MI South ift)
Elevation: 750.4 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/13/2023 Date End: 07/13/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	2.6
Sampler	Hand Auger	3 1/4"	End	2.6
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Depth Drilled: 4.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
750.2	0.25	A-1		4		36" Clayey Topsoil				
749.9	0.50									
749.7	0.75									
749.4	1.00									
749.2	1.25									
748.9	1.50									
748.7	1.75									
748.4	2.00									
748.2	2.25									
747.9	2.50	A-2		5		3.0				
747.7	2.75									
747.4	3.00									
747.2	3.25	A-3			CL	Dark brown lean CLAY; mostly clayey fines, moist, Fill with occasional tree roots and wood debris	2.25	49.9		Small plastic wire casing encountered at 3.0'
746.9	3.50									
746.7	3.75									
746.4	4.00					End of Boring				Hand auger refusal at 4.0' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-10
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: BG Rev. By: RS
Coordinates: N=279767.8 E=13307372.1 (MI South ift)
Elevation: 755.1 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/19/2023 Date End: 07/19/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	9.0
Sampler	Hand Auger	3 1/4"	End	9.0
Core			Seepage	9.0
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.

Depth Drilled: 9.2 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
754.9	0.25					18" Clayey Topsoil				Fill: 0.0' to 7.5'
754.6	0.50									
754.4	0.75									
754.1	1.00									
753.9	1.25									
753.6	1.50					1.5				
753.4	1.75	A-1				Brown lean CLAY; mostly clayey fines, trace fine gravel, moist, Fill with occasional asphalt debris and root fragments	2.0			
753.1	2.00									
752.9	2.25									
752.6	2.50									
752.4	2.75									
752.1	3.00									
751.9	3.25	A-2					1.75			
751.6	3.50									
751.4	3.75									
751.1	4.00									
750.9	4.25									
750.6	4.50									
750.4	4.75	A-3			CL		1.75			
750.1	5.00									
749.9	5.25									
749.6	5.50									
749.4	5.75									
749.1	6.00									
748.9	6.25									
748.6	6.50									
748.4	6.75									
748.1	7.00	A-4				Grades with few coarse to fine sand at 6.9'	2.0			
747.9	7.25									
747.6	7.50					7.5				
747.4	7.75					Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, moist				
747.1	8.00									
746.9	8.25									
746.6	8.50				CL					
746.4	8.75									
746.1	9.00					Grades with wet sand seam at 9.0'				
						9.2				
						End of Boring				Auger refusal at 9.2' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-11A
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By: RS
Coordinates: N=279770.9 E=13307376.6 (MI South ift)
Elevation: 748.0 ft Datum: NAVD 88 (GPS Observation)
Notes:

Date Begin: 07/18/2023 Date End: 07/18/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	1.5
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Plugging Record: Backfilled borehole with compacted cuttings.

Depth Drilled: 2.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
747.8	0.25					18" Clayey Topsoil				
747.5	0.50									
747.3	0.75									
747.0	1.00									
746.8	1.25	A-1								
746.5	1.50					1.5				
746.3	1.75				SP-SC	Brown poorly graded SAND with clay; mostly coarse to fine sand, few clayey fines, wet				
746.0	2.00					2.0				
						End of Boring				Auger refusal at 2.0' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
SOIL BORING LOGS 7A TO 11A

SCALE PLAN: NTS
DRAWING No. AA23004-12
SHEET No. 12 OF 13

LOG OF BORING

Project No.: 231349
Boring No.: B-12
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By:RS
Coordinates: N=279804.0 E=13307335.7 (MI South ift)
Elevation: 763.8 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings, patched pavement with cold patch.

Date Begin:07/18/2023 Date End: 07/18/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 6.0 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
763.6	0.25					8" Clayey Topsoil				Fill: 0.0' to 6.0'
763.3	0.50					0.7				
763.1	0.75					Brown lean CLAY with sand; mostly clayey fines, little coarse to fine sand, few coarse to fine gravel, moist, Fill				
762.8	1.00									
762.6	1.25									
762.3	1.50									
762.1	1.75									
761.8	2.00	A-1						1.5		
761.6	2.25									
761.3	2.50									
761.1	2.75									
760.8	3.00							2.0		
760.6	3.25									
760.3	3.50				CL					
760.1	3.75									
759.8	4.00	A-2								
759.6	4.25									
759.3	4.50									
759.1	4.75									
758.8	5.00									
758.6	5.25									
758.3	5.50									
758.1	5.75							3.0		
757.8	6.00	A-3				Grades with occasional root fragments at 5.8' 6.0				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-14
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: IA Rev. By:RS
Coordinates: N=279807.1 E=13307341.0 (MI South ift)
Elevation: 757.0 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings.

Date Begin:07/27/2023 Date End: 07/27/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	5.0
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 9.2 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
756.8	0.25					2" Sandy Topsoil 0.2				Fill: 0.0' to 6.0'
756.5	0.50					Brown lean CLAY with sand and gravel; mostly clayey fines, some coarse to fine sand, little coarse to fine gravel, moist, Fill				
756.3	0.75									
756.0	1.00									
755.8	1.25						2.5			
755.5	1.50									
755.3	1.75									
755.0	2.00									
754.8	2.25									
754.5	2.50									
754.3	2.75						2.5			
754.0	3.00									
753.8	3.25				CL					
753.5	3.50									
753.3	3.75									
753.0	4.00									
752.8	4.25									
752.5	4.50									
752.3	4.75						3.5			
752.0	5.00									
751.8	5.25									
751.5	5.50									
751.3	5.75									
751.0	6.00	A-1				6.0	4.0			
750.8	6.25					Brown lean CLAY; mostly clayey fines, few medium to fine sand, trace fine gravel, moist				
750.5	6.50									
750.3	6.75									
750.0	7.00									
749.8	7.25	U-1						15.6		
749.5	7.50									
749.3	7.75				CL					U-1: Atterberg Limits ASTM D4318: LL = 41, PL = 18, PI = 23
749.0	8.00					Grades with few fine gravel				
748.8	8.25									
748.5	8.50									
748.3	8.75	U-2					4.0			
748.0	9.00					9.2				
						End of Boring				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

LOG OF BORING

Project No.: 231349
Boring No.: B-13
Sheet: 1 of 1

Project: Huron River Drive Slope Failure
Client: Spalding DeDecker
Location: Ann Arbor, Michigan
Drill Type: Hand Auger
Crew Chief: Field Eng.: BG Rev. By:RS
Coordinates: N=279807.1 E=13307341.0 (MI South ift)
Elevation: 757.0 ft Datum: NAVD 88 (GPS Observation)
Notes:

Plugging Record: Backfilled borehole with compacted cuttings.

Date Begin:07/19/2023 Date End: 07/19/2023

Tooling	Type	Dia.	Groundwater, ft.	
Casing			During	None
Sampler	Hand Auger	3 1/4"	End	NA
Core			Seepage	
Tube			Date	Depth, ft.
SPT Hammer				

Depth Drilled: 2.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
756.8	0.25					18" Clayey Topsoil				Fill: 0.0' to 2.5'
756.5	0.50									
756.3	0.75									
756.0	1.00									
755.8	1.25									
755.5	1.50	A-1				1.5	2.0			
755.3	1.75					Brown lean CLAY: mostly clayey fines, trace coarse to fine gravel, moist, Fill with occasional asphalt debris and root fragments				
755.0	2.00				CL					
754.8	2.25									
754.5	2.50	A-2				2.5	2.0			
						End of Boring				Auger refusal at 2.5' due to possible coarse gravel / COBBLE

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	REFRESH FOR NEW BID CYCLE	11/14/25	RD	AL

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E. HURON RIVER DRIVE RETAINING WALL
REPLACEMENT AND ROAD RECONSTRUCTION
RIVERSIDE DR TO CHALMERS RD
SOIL BORING LOGS 12 TO 14

SCALE PLAN: NTS
DRAWING No. AA23004-13
SHEET No. 13 OF 13