ADDENDUM No. 1

ITB No. 4669 - 2021 MISCELLANEOUS UTILITIES PROJECT

Updated Bid Due Date and Time:
APRIL 15, 2021 at 10:00 AM (Local Time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. This Addendum includes one hundred forty-four (144) pages.

Bidder is to acknowledge receipt of this Addendum No. 1, including all attachments (if any) in its Bid by so indicating on page ITB-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum may be considered nonconforming.

The following forms provided within the ITB document must be included in submitted bids:

- City of Ann Arbor Prevailing Wage Declaration of Compliance
- City of Ann Arbor Living Wage Ordinance Declaration of Compliance
- Vendor Conflict of Interest Disclosure Form
- City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance

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

I. CORRECTIONS/ADDITIONS/DELETIONS
Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

<table>
<thead>
<tr>
<th>Section/Page(s)</th>
<th>Change</th>
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<tbody>
<tr>
<td>As provided in ITB No. 4669 Bid Document:</td>
<td>As updated/replaced herein Addendum 1:</td>
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<tr>
<td>All mentions</td>
<td>Bid Due Date and Time in ITB Document: Friday, April 9, 2021 at 2:00pm (local time)</td>
</tr>
<tr>
<td>Notice of Pre-Bid Conference</td>
<td>Pre-Bid Conference Summary added: Pages Addendum1-NP-2 to Addendum1-NP-3.</td>
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<tr>
<td>Bid Forms/ BF-1 to BF-6</td>
<td>Bid Form – Schedule of Prices, Pages Addendum1-BF-1 to Addendum1-BF-5. Pay Items revised: • New 210 “Remove and Salvage Modular Block Wall” • 213 renamed “HMA Pavement Removal” and units revised</td>
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<th>Pay Items revised (continued):</th>
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<tr>
<td></td>
<td>• New 214 “Concrete Base Course Removal”</td>
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<td></td>
<td>• 215 quantity revised per revised Detailed Specification (DS)</td>
</tr>
<tr>
<td></td>
<td>• 223-226 renumbered to 225-228</td>
</tr>
<tr>
<td></td>
<td>• 227-228 renumbered to 223-224</td>
</tr>
<tr>
<td></td>
<td>• New 229 “Reinstall Modular Block Wall”</td>
</tr>
<tr>
<td></td>
<td>• Duplicate 234 renumbered to 236</td>
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<tr>
<td></td>
<td>• 235-239 renumbered to 238-242</td>
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<tr>
<td></td>
<td>• New 235 “HMA Pavement Leveling/Top 4E3”</td>
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<tr>
<td></td>
<td>• New 237 “HMA Pavement Base 3E3”</td>
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<tr>
<td></td>
<td>• New 243 “Concrete Base Course, Nonreinf”</td>
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<tr>
<td></td>
<td>• New 244 “HMA Temporary Pavement”</td>
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<td></td>
<td>• 240 renumbered 245</td>
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<tr>
<td></td>
<td>• 241 “Conc. Curb (HE)” eliminated per revised DS 250 (formerly DS 246)</td>
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<tr>
<td></td>
<td>• 242 renumbered to 246; revised quantity per new 250</td>
</tr>
<tr>
<td></td>
<td>• 243-244 renumbered to 247-248</td>
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<tr>
<td></td>
<td>• 245 renumbered to 249; revised quantity and units</td>
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<tr>
<td></td>
<td>• New 250 “Integral Sidewalk Rolled Curb”</td>
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<td></td>
<td>• 246-247 renumbered to 251-252</td>
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<td></td>
<td>• 250-251 renumbered to 253-254</td>
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<td>• 260-273 renumbered to 263-276</td>
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<td>• 322 revised quantity per new 323 and 324</td>
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<td>• New 323 “24-inch Storm, Trench II (2)”</td>
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<td>• New 324 “24-inch Storm, Trench VII (7)”</td>
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<td>• 330 and 566 combined and renumbered to 290</td>
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<td>• 340 renamed “Dr Inlet Structure, 24-inch dia”</td>
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<td>• 341 “Dr Structure, 36-inch dia” eliminated per 0 quantity</td>
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<td>• 342 renumbered to 341 and renamed “Dr Inlet Junction Structure, 48-inch dia” and revised quantity</td>
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<td>• 343 renumbered to 342 “Dr Inlet Junction Structure, 60-inch dia” and 343 “Dr Manhole Structure, 60-inch dia”</td>
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<td>• 344 renamed “Dr Manhole Structure, 72-inch dia”</td>
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<td>• 345 renumbered to 345 “Dr Manhole Structure, 84-inch dia” and 346 “Dr Manhole Structure over Existing, 84-inch dia”</td>
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<td>• 346 “Dr Structure, 96-inch dia” eliminated per 0 quantity</td>
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<td>• 360 “Type I Manhole, 60-inch dia” eliminated per 0 quantity</td>
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<td></td>
<td>• 366 “Inlet-Junction Chamber” eliminated per 0 quantity</td>
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<td>• 367 “Single Inlet” eliminated per 0 quantity</td>
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Addendum1-2
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<td>• 401 revised quantity per new 402 and 403</td>
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<td>• New 402 “8-inch Class 50 DIP w/ poly, Trench IV (4)”</td>
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<td>• New 403 “8-inch Class 50 DIP w/ poly, Trench VI (6)”</td>
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<td>• New 418 “12”x12”x12” Tee”</td>
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<td>• 420 added quantity</td>
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<td></td>
<td>• New 422 “12”x12”x8” Tee”</td>
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<td>• 440 revised quantity</td>
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<td>• 442 revised quantity</td>
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<td>• New 443 “16inch Gate Valve in Box”</td>
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<td>• New 445 “Pressure Reducing Valve”</td>
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<td>• 563 renumbered 292</td>
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<td>• 566 renumbered to 290 (as mentioned above in combination with 330)</td>
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<td>• 567 renumbered to 291</td>
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<td>• New 701 “Erosion Control, Trench Drain Inlet Filter”</td>
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<td>• New 702 “Erosion Control, Inlet Protection”</td>
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<td>• New 703 “Erosion Control, Silt Fence”</td>
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<td>Detailed Specifications/**Pages DS-1 to DS-3</td>
<td>Pages Addendum1-DS-1 to Addendum1-DS-3; to reflect updated scheduling at Crest at W. Huron and Newport/Bird Roads locations.</td>
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<td>Pages Addendum1-DS-4 to Addendum1-DS-6; to specify new Pay Item #210.</td>
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<td>Detailed Specifications/**Pages DS-52 to DS-53</td>
<td>Pages Addendum1-DS-7 to Addendum1-DS-8; to reflect revised Pay Item #213 and new Pay Item #214.</td>
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<td>Detailed Specifications/**Pages DS-54 to DS-55</td>
<td>Pages Addendum1-DS-9 to Addendum1-DS-10; to reflect eliminated Pay Item #214 Sidewalk Grading and revised Pay Item #215.</td>
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<td>Detailed Specifications</td>
<td>Pages Addendum1-DS-11; Pay Item #220 specification.</td>
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<td>Detailed Specifications/**Pages DS-58 to DS-59</td>
<td>Pages Addendum1-DS-12 to Addendum1-DS-13; to reflect revised Pay Items #221 and #222, and to specify renumbered Pay Items #223 and #224.</td>
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<tr>
<td>Detailed Specifications/**Page DS-60</td>
<td>Page Addendum1-DS-14; to reflect renumbered Water Main Line Stop Pay Items #225 to #228.</td>
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<td>Detailed Specifications/**Pages DS-61 to DS-63</td>
<td>Pages Addendum1-DS-15 to Addendum1-DS-17; to specify new Pay Item #229 and reflect revised Pay Item #230.</td>
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<td>Detailed Specifications/ Pages DS-67 to DS-69</td>
<td>Pages Addendum1-DS-18 to Addendum1-DS-21; to specify new Pay Items #235, #237, and #243; and to reflect renumbered HMA Pay Items #234 to #243.</td>
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<td>Detailed Specifications/ Pages DS-70 to DS-73</td>
<td>Pages Addendum1-DS-22 to Addendum1-DS-25; to specify new Pay Items #244 and #250; to reflect renumbered and revised concrete Pay Items #244 to #251.</td>
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<tr>
<td>Detailed Specifications/ Pages DS-74 to DS-75</td>
<td>Pages Addendum1-DS-26 to Addendum1-DS-27; to reflect renumbering.</td>
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<td>Detailed Specifications/ Page DS-76</td>
<td>Page Addendum1-DS-28; to reflect renumbered Pavement Marking Pay Items #253 to #262.</td>
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<td>Detailed Specifications/ Pages DS-77 to DS-79</td>
<td>Pages Addendum1-DS-29 to Addendum1-DS-31; to reflect renumbered Temporary Traffic Control Pay Items #263 to #276.</td>
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<td>Detailed Specifications/ Pages DS-77 to DS-79</td>
<td>Pages Addendum1-DS-32 to Addendum1-DS-33; to specify, and reflect renumbering of, Structure Adjustment Pay Items #290 to #291, and Structure Cover Pay Item #292.</td>
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<tr>
<td>Detailed Specifications/ Pages DS-91 to DS-92</td>
<td>Pages Addendum1-DS-34 to Addendum1-DS-35; to reflect renumbering.</td>
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<td>Detailed Specifications/ Page DS-88</td>
<td>Page Addendum1-DS-36; to reflect renumbering.</td>
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<td>Detailed Specifications</td>
<td>Pages Addendum1-DS-37 to DS-38; Pay Item #445 specification.</td>
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<td>Page Addendum1-DS-39; Pay Item #450 specification.</td>
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<tr>
<td>Detailed Specifications</td>
<td>Page Addendum1-DS-40; to specify new Pay Items #701, #702, and #703.</td>
</tr>
<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-66 to Addendum1-Apdx-68 Geotechnical Boring Logs from Crest with location map</td>
</tr>
<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-69 to Addendum1-Apdx-70 Huron Street Design Sheets provided by MDOT</td>
</tr>
<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-71 to Addendum1-Apdx-78 Wage Decision MI20210074</td>
</tr>
<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-79 to Addendum1-Apdx-84 W. Liberty St. Sanitary Sewer Televising Reports</td>
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<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-85 to Addendum1-Apdx-91 MDOT ADA Compliant Sidewalk Ramp Details R-28-J</td>
</tr>
</tbody>
</table>
### II. QUESTIONS AND ANSWERS

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

**Question 1:** What is the Engineer’s Estimate for this project?  
**Answer 1:** $2,175,000.

**Question 2:** Is testing by the Owner?  
**Answer 2:** Yes, testing to be performed by City’s consultant.

**Question 3:** Is layout by the Owner?  
**Answer 3:** Yes, staking to be provided by City’s Surveyor.

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<tr>
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<tr>
<td>Appendix</td>
<td>Pages Addendum1-Apdx-92 to Addendum1-Apdx-95 Standard Casting Schedule and Structure Cover Details</td>
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<tr>
<td>Drawings/1</td>
<td>Revised Sheet List Table</td>
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<tr>
<td>Drawings/4, 6, 7</td>
<td>Added limits of machine grading</td>
</tr>
<tr>
<td>Drawings/9</td>
<td>Sheet 9 added trench details 2, 4, and 6</td>
</tr>
</tbody>
</table>
| Drawings | New sheet 10 – Pressure Reducing Vault plan and section views  
New sheet 11 – Pressure Reducing Vault details |
| Drawings/24 | (Renumbered Sheet 26) – Added trench detail call-outs, TD-II & VI, to profile |
| Drawings/27 | (Renumbered Sheet 29) – Size of PRV vault changed to 10x5 |
| Drawings | New sheets 37 and 38 – Flipped MOT for Liberty  
1. Sheets 44 & 45 - Added GVIW’s and removed GVIB’s  
2. Sheet 46 – work zone quantities  
3. Sheet 54 – Added GVIW, removed GVIB and changed trench detail call-out |
| Drawings/40, 41 | (Renumbered Sheets 44, 45) - Added GVIW’s and removed GVIB’s |
| Drawings/42 | (Renumbered Sheet 46) - Work zone quantities |
| Drawings/50 | (Renumbered Sheet 54) Sheet 54 – Added GVIW, removed GVIB and changed trench detail call-out |
Question 4: Do you know if the City will be performing inspection, or will inspection be by a third-party engineering firm?
Answer 4: Inspection is expected to be provided by City staff.

Question 5: Can you please provide the wage decision that will be used for the project?
Answer 5: The wage decision information, General Decision Number: MI20210074 01/01/2021, is included in Addendum No. 1.

Question 6: It appears that there are missing quantities for Pay Item 341, 346, 360, 366, 367 and 420.
Answer 6: Quantities and Pay Items have been clarified on the Bid Form.

Question 7: It appears that Pay Items 414 and 418 are duplicates.
Answer 7: Duplicate Pay Items have been eliminated.

Question 8: No soil erosion control pay items are included. In lieu of lumping this into “General Conditions”, can these items be added to the bid form.
Answer 8: Pay Items 701 thru 703 have been added for soil erosion control pay items.

Question 9: Please detail how the AREA for “Machine Grading” will be calculated. The specifications are silent as to how the transverse / longitudinal limits are to be determined.
Answer 9: Machine grading limits are calculated to the edge of the 1:1 slope outside of road grading as indicated in the street proposed typical sections on Sheets 4 thru 7. Additional clarification has been added to the Machine Grading specification section.

Question 10: Will the required removals associated with the “Temporary Water Main Line Stop” pay item(s) be paid for separately, or are they incidental to the Line Stop pay item?
Answer 10: Pavement removal and/or machine grading will be paid for separately.

Question 11: There is no SP for pay items 228 [Abandon Vault (PRV)] and 450 [72” x 96” Conc Vault (PRV)]. In addition, plan details are very limited and the scope of work for these items is not well defined. Please provide additional information as necessary.
Answer 11: An “Abandon Vault (PRV)” detailed specification has been added and renumbered 224. A “60” x 120” Concrete Vault (PRV)” detailed specification has been added.

Question 12: The proposed duration for the Newport Road/Bird Road section of work is not possible with the specified water main testing requirements and requested scope of work. Please revise the required duration for this area.
Answer 12: The proposed duration has been revised.

Question 13: The proposed duration for the Crest Avenue/West Huron Street section of work is not possible with the specified water main testing requirements and requested scope of work. Please revise the required duration for this area.
Answer 13: The proposed duration has been revised.

Question 14: I do not see a MOT plan for the north side (westbound) West Liberty Street construction. I assume that the provided MOT plan will be flip flopped to maintain eastbound traffic when this work is taking place, correct? Are the long side water services and transverse water main items that cross West Liberty Street to be performed under traffic, or built part width to the construction limits during a “phase”? Please advise.
Answer 14: West Liberty Street MOT plans have been added for maintaining eastbound traffic on the south side of West Liberty Street.

Question 15: Although the specifications state that the aggregate materials must meet City Specifications, will the City consider a waiver for the uniformity coefficient (CLII sand) and loss by wash requirement (21AA LS) for these materials (assuming that they would still meet the MDOT specifications)?

Answer 15: The CLII sand and 21AA limestone will need to meet MDOT specifications, but the City’s uniformity coefficient and loss by wash requirements, respectively will be waived.

Question 16: Are any lead or galvanized water services anticipated to be encountered on this project? If so, what procedure(s) will be followed to remedy the deficient material? Who is responsible for replacing the services past the curb stop (if required)?

Answer 16: It is anticipated that Public Works will have replaced any lead or galvanized water services on record by the time this project begins. However, should any lead or galvanized water services be encountered during construction, the Public Works Department should be notified immediately to remedy deficient material. The contractor could be requested to provide additional services paid for as “Excavate & Backfill for Water Service Tap and Lead”. Services past the curb stop, as necessary, will be installed separate from this contract.

Question 17: Has the existing sanitary sewer been televised? If so, please provide the inspection results with the locations of the lead connections for evaluation.

Answer 17: The existing sanitary sewer on West Liberty Street have been televised. The reports have been included in this addendum.

Question 18: What is the approximate age of the existing water main?

Answer 18: The City’s records indicate the following installation years:
- 6-inch W. Liberty St. 1910
- 12-inch W. Liberty St. (Crest to Eberwhite) 1970
- 12-inch W. Liberty St. (Eberwhite to S. Seventh) 1950
- 6-inch Crest 1940
- 12-inch Crest Uncertain and 1970

Question 19: There are 2 bid items as number 255.

Answer 19: The bid items have been renumbered for clarification.

Question 20: There are 2 bid items called 8x6 Reducer (414 and 418)

Answer 20: Duplicate bid items have been eliminated.

Question 21: There are no bid items for 16” GVIB and 12x12x12 Tee.

Answer 21: Additional bid items have been added.

Bidders are responsible for any conclusions that they may draw from the information contained in the Addendum.
I. Introductions & Recording

The City’s meeting facilitator and project manager on this project, Theresa Bridges, (herein “the City”) called the Pre-Bid Conference to order at 1:40 p.m. and asked for introductions of all in attendance:

- Theresa Bridges, City of Ann Arbor Project Manager
- Chris Carson, City of Ann Arbor Project Civil Engineer
- Dave Fiegel, City of Ann Arbor Civil Engineering Specialist
- John Niemiec, E.T. Mackenzie

Due to technical difficulties, virtual meeting could not be recorded.

II. Project Overview

a. N. Main Street Storm Sewer

Objective is to reroute storm sewer. Currently storm sewer alignment is under buildings at 1251 N. Main and 1254 N. Main.

i. Accessibility

- Contractor’s responsibility to maintain accessibility to Bandemer Park.
- Accessibility to 1250 N. Main Street has not been addressed with owner. Currently employees are generally working from home. Temporary parking for employees could be provided at Bandemer Park if owner is amenable.

ii. Lake Shore Drive (Private)

- Lake Shore Drive is not R.O.W.
- South half of Drive has easement for storm sewer work (and access). North half of drive has access easement and shall to be restored as necessary from damage incidental to project construction/access.

iii. MDOT – Parks – 1251 N. Main, 1254 N. Main, 1250 N. Main, Railroad

- Stake holders in the area.
  a. MDOT for N. Main Street.
  b. Parks for land north of 1251 N. Main and west of N. Main Street.
  c. 1251 N. Main Street. Potential redevelopment site. Blanket easement for storm sewer.
  d. 1254 N. Main Street, owned by First Martin. Do not have construction easement.
  e. 1250 N. Main Street, owned by Peter Allen. Blanket easement for storm sewer.
  f. Railroad. Do not have Permit to Enter!

iv. Utility Conflicts

- Pole in Lake Shore Drive currently being relocated.
- Water service to 1254 N. Main Street in conflict and contractor to relocate.

v. Storm sewers (including manholes) shall be cleaned and televised before final acceptance

b. Newport / Bird Pressure Reducing Valve Installation

Objective is to install new pressure reducing valve and abandon existing.

i. Detour and Accessibility

- Detour plan provided. Option for contractor to keep one lane open on the north side of Bird with flagging.

ii. Valve and Vault Purchase

- Valve and Vault to be provided by contractor. Specifications to be provided in Addendum.
c. W. Liberty and Crest
   i. Detour and Accessibility
   ii. Water Main – Installation and Testing
      - HMA removal for trench / storm replacements
      - Crest milling HMA prior to HMA placement
      - Water laterals tap by DPW and galvanized/lead replaced by DPW
   iii. Sanitary leads when conflicts exist.
   iv. Storm and sanitary sewers (including manholes) shall be cleaned (and televised if new) before final acceptance
   v. Sidewalk and ADA Ramps – ADA compliance MUST be achieved at all locations.

d. Standard Specifications and Detailed Specifications
   i. Project Schedule
      - Starting Date – May 17 insurance /contracts/bonds. City Council Award date will be May 3, 2021.
      - N. Main - June-July OR Sept-Oct
      - Newport / Bird – Complete by September 3 (Schedule being reviewed)
      - W. Liberty & Crest – Complete by Nov. 1
      - Huron / Crest – Complete by August 14 (Schedule being reviewed)
      - Hours of work: 7:00 a.m. to 8:00 p.m. Monday thru Saturday (Saturdays require notification; Sundays only with permission)
      - Holidays
   ii. Engineer’s estimate - $2.2M
   iii. General Conditions
      - Street sweeping & dust control
      - Maintenance gravel
      - Maintaining drainage
   iv. Access to driveways - Contractor responsible for maintaining access to driveways during construction, and notifying residents when access will be unavailable (i.e. during water main installation, during paving, concrete work)

e. Certified Payroll Compliance – using Davis Bacon Wage Decision. Submit payroll weekly, see form at back of ITB.
   - Wage Decision to be provided in Addendum.

III. Addendum #1 – will include the following
   a. Pre-Bid minutes, including Sign-in Sheet
   b. Updated Plan Sheets
   c. Updated Bid Form: Pay Items and Quantities
   d. Additional and Updated Specifications
   e. Required Wage Decision
   f. Question and Answers
      i. Question Deadline is Monday, March 29, 2021 5:00pm in writing to tbridges@a2gov.org and espencer@a2gov.org

Contact Information:
Theresa Bridges, Project Manager
Phone: (734) 794-6410 ext. 43672
E-mail: tbridges@a2gov.org
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<th>Item</th>
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<td>Project Supervision, Max $40,000.00</td>
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<td>General Conditions, Max. $60,000.00</td>
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<td>204</td>
<td>Minor Traffic Devices, Max $50,000.00</td>
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<td>206</td>
<td>&quot;No Parking&quot; Signs</td>
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<td>207</td>
<td>Certified Payroll Compliance and Reporting</td>
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<td>Allowance for Unforeseen Site Conditions</td>
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<td>210</td>
<td>Remove and Salvage Modular Block Wall</td>
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<td>211</td>
<td>Remove Concrete Curb or Curb and Gutter - Any Type</td>
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<td>212</td>
<td>Remove Concrete Sidewalk and Drive - Any Thickness</td>
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<td>212</td>
<td>Cold Milling HMA Surfce</td>
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<td>213</td>
<td>HMA Pavement Removal, Any Depth</td>
<td>SYD</td>
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<td>214</td>
<td>Concrete Subsurface Pavement Removal, Any Depth</td>
<td>SYD</td>
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<td>215</td>
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<td>216</td>
<td>Sewer, Any Size or Depth, Remove</td>
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<td>Drainage Structure, Any Size or Depth, Remove</td>
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<td>Additional Depth Structure Adjust/Repair</td>
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<td>Remove Sanitary Sewer Lead</td>
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<td>Fire Hydrant Assembly Abandonment</td>
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<td>Abandon Gate Well</td>
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<td>224</td>
<td>Abandon Vault (PRV)</td>
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<td>Temporary Water Main Line Stop, Additional Rental Day</td>
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<td>Temporary Water Main Line Stop, Less than 8 inch</td>
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<td>Temporary 16 inch Water Main Line Stop</td>
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<td>HMA Hand Patching</td>
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<td>HMA Temporary Pavement</td>
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<td>Concrete Curb or Curb and Gutter - All Types</td>
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<td>4 Inch Concrete Sidewalk</td>
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<td>6 Inch Concrete Sidewalk Ramp</td>
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<td>248</td>
<td>6 Inch Concrete Drive or Sidewalk - High Early</td>
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<td>4-inch integral sidewalk/curb</td>
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<td>250</td>
<td>4-inch integral sidewalk/rolled curb</td>
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<td>Driveway Opening, Conc, Detail M - High Early</td>
<td>FT</td>
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<td>Detectable Warning, Cast In Place</td>
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<td>Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk</td>
<td>FT</td>
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<td>254</td>
<td>Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar</td>
<td>FT</td>
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<td>Pavt Mrkg, Polyurea, Lt Turn Arrow Sym</td>
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<td>Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike</td>
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<td>Pavt Mrkg, Ovly Cold Plastic, Bike, Small Sym</td>
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<td>Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol</td>
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<td>259</td>
<td>Pavt Mrkg, Polyurea, 4 inch, White</td>
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<td>Pavt Mrkg, Polyurea, 4 inch, Yellow</td>
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<td>Pavt Mrkg, Polyurea, 6 inch, White</td>
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<td>262</td>
<td>Recessing Pavt Mrkg, Longit</td>
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<td>263</td>
<td>Pavt Mrg Cover, Type R, Black</td>
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<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp</td>
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<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp</td>
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<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch Crosswalk</td>
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<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch Stop Bar</td>
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<td>Lighted Arrow Board, Furnish and Operate</td>
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<td>269</td>
<td>Sign, Portable Changeable Message, Furnish and Operate</td>
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<td>Plastic Drum - Lighted, Furnish and Operate</td>
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<td>Barricade Type III - Lighted, Furnish and Operate</td>
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<td>Temporary Sign, Type B, Furnish and Operate</td>
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<td>Temporary Sign, Type B, Furnish and Operate, Special</td>
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<td>Channelizing Device, 42 Inch, Furnish and Operate</td>
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<td>Pedestrian Type II Barricade, Temp</td>
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<td>Temporary Pedestrian Ramp</td>
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<td>Temporary Pedestrian Mat</td>
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<td>Mulch Blanket, High Velocity</td>
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<td>Seeding, Mixture THM</td>
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<td>Topsoil Surface, Furn, 4 inch</td>
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<td>Underground Sprinkling Systems, Restore</td>
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<td>Adjust Structure Cover</td>
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<td>Adjust Monument Box or Gate Valve Box</td>
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<td>Structure Covers</td>
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<td>326</td>
<td>Sewer Tap, 12 inch</td>
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<td>Sewer Tap, 24 inch</td>
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<td>Dr Structure Cover, Type K</td>
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<td>Dr Inlet Structure, 24 inch dia</td>
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<td>Dr Inlet Junction Structure, 48 inch dia</td>
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<td>Dr Inlet Junction Structure, 60 inch dia</td>
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<td>Dr Manhole Structure, 60 inch dia</td>
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<td>Dr Manhole Structure, 72 inch dia</td>
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<td>Dr Manhole Structure, 84 inch dia</td>
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<td>Dr Manhole Structure Over Existing, 84 inch dia</td>
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<tr>
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<tr>
<td>410</td>
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</table>

**TOTAL THIS PAGE (BF-4) (Also to be entered on BF-5)** $
## BID FORM

### SCHEDULE OF PRICES

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Estimated Quantity</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>413</td>
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<td>EA</td>
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<td>414</td>
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<tr>
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<tr>
<td>440</td>
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<td>442</td>
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<td>EA</td>
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<td>$</td>
</tr>
<tr>
<td>443</td>
<td>16&quot; Gate Valve-in Box</td>
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<tr>
<td>445</td>
<td>Pressure Reducing Valve</td>
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<td>450</td>
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<tr>
<td>460</td>
<td>Excavate &amp; Backfill for Water Service Tap and Lead</td>
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<td>701</td>
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<td>702</td>
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</table>

**TOTAL THIS PAGE (BF-5) (Also to be entered below):**  

**TOTAL FROM PAGE BF-1:** $  
**TOTAL FROM PAGE BF-2:** $  
**TOTAL FROM PAGE BF-3:** $  
**TOTAL FROM PAGE BF-4:** $  
**TOTAL FROM PAGE BF-5:** $  

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

1. By no later than the **Pre-Construction Meeting** the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule each week and present it to the Engineer at the weekly progress meeting.

2. It is anticipated the Contractor will be authorized by City Council on May, 3, 2021. The contract will be sent to the contractor at least two weeks prior to the council Award, by April 19, 2021. The Contractor shall properly execute the Contract and return, with the required Bonds and Insurance Certificate, to the City **on or before May 4, 2021**.

3. The Contractor shall begin the work of this project upon receipt of the fully executed Contract and Notice to Proceed, anticipated by **May 17, 2021**. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date. The Pre-Construction Meeting will be held the week of May 3, 2021.

4. This contract requires sewer or water main work at four separate locations, and shall be completed within timeframes listed below:

   1) **W. Liberty Street and Crest Avenue** – Work at this location consists of the installation of new water main, pavement resurfacing, and associated work. The work at this location shall commence upon Notice to Proceed, anticipated to be **May 17, 2021** and shall be completed by **November 1, 2021**, or **within one hundred ten (168) consecutive calendar days**. The entire work at this location as required by this Contract, includes, but is not limited to water main installation, chlorinating, pressure testing, and flushing; transfer of the water service leads; installation of storm water structures and sewer; pavement cold milling, the installation of new sidewalk and sidewalk ramps, permanent placement of hot mix asphalt and/or concrete, the restoration of all disturbed areas; and the removal of any and all traffic control devices.

   2) **N. Main Street** – Work at this location consists of the installation of new storm sewer and associated work. The utility work at this location, including all appurtenances, shall be completed within **thirty (30) consecutive calendar days** from commencing at this location. The entire work at this location as required by this Contract, including the stabilization of all disturbed areas and the removal of any and all traffic control devices shall be completed within **forty-five (45) consecutive calendar days** after commencing with the utility work at this location. The contractor shall choose one of the two following timeframes:

      • **Commence June 1, 2021 and complete by July 14, 2021**; Or
      • **Commence September 7, 2021 and complete by October 22, 2021**.

   3) **Crest Avenue at W. Huron Street** - Work at this location consists of the installation of new water main and associated work.

      • The work at this location shall commence no earlier than **July 19, 2021**.
      • Within twenty (20) calendar days from the time of commencing, the Contractor must complete the following tasks: install, swab, chlorinate, pressure test, and flush the new water main pipe. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor $500 in “Liquidated Damages”, and not as a penalty, for each and every calendar
day beyond the allowed number of calendar days to complete the above specified work.

- After completion of all work outlined above (install, swab, chlorinate, pressure test, and flush the new water main pipe), the Contractor must successfully complete all the required bacteriological testing and place the new water main into service.

- All remaining work at this location shall be completed by September 1, 2021 including, but not limited to the restoration of all disturbed areas, permanent placement of hot mix asphalt and concrete, and the removal of any and all traffic control devices. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor $500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.

4) Newport/Bird Roads – Work at this consists of the installation of a new water pressure reducing valve and associated work.

- The work at this location shall commence no earlier than July 6, 2021.

- Within thirty (30) calendar days from the time of commencing, the Contractor must complete the following tasks: install, swab, chlorinate, pressure test, and flush the new water main pipe. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor $500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.

- After completion of all work outlined above (install, swab, chlorinate, pressure test, and flush the new water main pipe), the Contractor must successfully complete all the required bacteriological testing and place the new water main into service.

- All remaining work at this location shall be completed by August 14, 2021 including, but not limited to the restoration of all disturbed areas, permanent placement of hot mix asphalt, and the removal of any and all traffic control devices. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor $500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.

- Should extensions be granted, the area shall be passable for the Dexter-Ann Arbor Run the River event at no additional cost to the City.

5. Work day, hour, and other work restrictions imposed by the City of Ann Arbor.

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

- Monday – Friday: 7am-8pm
- Saturday: 7am-8pm; Notice given to City of Ann Arbor no less than 48 hours and no more than 5 days
- Sunday: only with approval from the City of Ann Arbor
- No work shall be performed during Holiday weekends as follows, unless approved by the Engineer:
  - Memorial Day, from 3:00 pm Friday, May 28 through 7:00 am Tuesday, June 1, 2021
  - Fourth of July, from 3:00 pm Friday, July 2 through 7:00 am Tuesday, July 6, 2021
  - Labor Day, from 8:00 pm Friday, September 3 through 7:00 am Tuesday, September 7, 2021

Addendum1-DS-2
- No work shall be performed during University of Michigan home football games:
  - September 4, 2021
  - September 11, 2021
  - September 18, 2021
  - September 25, 2021
  - October 16, 2021
  - November 6, 2021

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.

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.

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, which are caused as a result of working in the dark.

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

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, $500.00 in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the times for each sub-phase, as required by this Detailed Specification.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer’s approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season.
DETAILED SPECIFICATION
FOR
ITEM #210 – REMOVE AND SALVAGE MODULAR BLOCK WALL
ITEM #211 - REMOVE CONCRETE CURB OR CURB & GUTTER – ANY TYPE
ITEM #212 – REMOVE CONCRETE SIDEWALK AND DRIVE – ANY THICKNESS

DESCRIPTION
This work shall consist of removing and salvaging modular block wall; removing concrete curb, gutter, curb and gutter, integral curb, sidewalk, sidewalk ramps, drive openings, and drives as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

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

The Contractor shall remove and salvage the modular retaining wall for reinstallation upon final grading and restoration. Neatly stack and protect the blocks until such time.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals. The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide City of Ann Arbor Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches as shown on the Plans, as directed by the Engineer, and as marked for removal. The Contractor shall cut steel reinforcement bars as directed by the Engineer at all areas of removal.

The Contractor shall excavate, cut, remove stumps, remove brush, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact granular material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots 2 inches or larger in size.

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

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

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "21AA Limestone - C.I.P.", “Aggregate Base Course, 21AA - C.I.P.” or
"Sand Subbase Course, CL II - C.I.P.". Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in the appropriate concrete removal item.

Where existing concrete curb & gutter is to be replaced on a street with a concrete (or brick) base, the Engineer may direct the Contractor to remove a 1-to-2-foot wide, full-depth section of pavement and pavement base from immediately in front of the curb & gutter. As part of this pavement/base removal, the Contractor shall perform additional (double) full-depth saw-cutting along the entire removal limits, and shall take sufficient care so as not to damage and/or disturb any adjacent pavement, pavement base, and/or any other site feature, all as directed by the Engineer. The removals shall be to a sufficient width and depth to allow for the placement and removal of the curb & gutter formwork. After the removal of the formwork, the Contractor shall replace the concrete base to its original thickness and elevation(s).

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

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

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

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. All restoration work and materials shall be in accordance with the Detailed Specifications “Clean-up & Restoration, Special”, “Fertilizer, Chemical Nutrient, Cl A”, “Mulch Blanket, High Velocity”, “Seeding Mixture THM”, and “Topsoil Surface, Furn, 4 inch.”

**MEASUREMENT AND PAYMENT**

Payment for “Remove and Salvage Modular Block Wall” shall be measured and paid for face area square foot.

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

Payment for saw cutting to create or modify Type M openings, and to allow for the partial removal of existing drives shall be included in the price of the item of work, “Remove Concrete Curb - Any Type”, and will not be paid for separately.

All saw-cutting required for removals shall be included in the appropriate item of work, and will not be paid for separately.

Restoration work, including backfilling and compacting will not be paid for separately, but shall be included in the appropriate associated items of work.
Concrete removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove and Salvage Modular Block Wall</td>
<td>Square Feet</td>
</tr>
<tr>
<td>Remove Concrete Curb or Curb and Gutter - Any Type</td>
<td>Foot</td>
</tr>
<tr>
<td>Remove Concrete Sidewalk and Drive - Any Thickness</td>
<td>Square Feet</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This work includes removal of pavement in accordance with as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

CONSTRUCTION METHOD
The Contractor shall remove HMA pavement and concrete base course, all regardless of the thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals.

The Contractor shall perform full-depth saw cutting at removal limits, as shown on the Plans, as directed by the Engineer, and as marked for removal.

Butt joints are included in the pay item “HMA Pavement Surface Removal”.

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

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

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "21AA Limestone - C.I.P.", “Aggregate Base Course, 21AA - C.I.P.” or "Sand Subbase Course, CL II - C.I.P.". Where the Engineer directs such materials to be removed, it will paid with “Subgrade Undercutting = Type II.”

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

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

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

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations. All restoration work and materials shall be in accordance with the Detailed Specifications “Clean-up & Restoration, Special”, “Fertilizer, Chemical Nutrient, Cl A”, “Mulch Blanket, High Velocity”, “Seeding Mixture THM”, and “Topsoil Surface, Furn, 4 inch.”
MEASUREMENT AND PAYMENT

All saw-cutting to establish a neat line required for removals shall be included in the appropriate item of work, and will not be paid for separately.

Finish work, including backfilling and compacting will not be paid for separately, but shall be included in the appropriate associated items of work.

HMA Pavement Surface Removal and Concrete Base Course Removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Pavement Surface Removal, Any Depth</td>
<td>Square Yard</td>
</tr>
<tr>
<td>Concrete Base Course Removal, Any Depth</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>

The unit prices for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification and disposal of the HMA and concrete materials.
DESCRIPTION
Remove miscellaneous structures and materials and complete all earthwork required to construct ADA compliant sidewalk ramps within the construction limits shown on the plans or stated in this detailed specification. All lines and grades will be as shown on the plans and as directed by the Engineer to comply with ADA requirements. Complete this work according to the MDOT 2012 Standard Specifications for Construction and this detailed specification.

MATERIALS
Furnish and place required subbase and embankment material conforming to the MDOT 2012 Standard Specifications for Construction as necessary to achieve the required typical cross sections. Excavated material, if suitable, may be used as embankment material as approved by the Engineer.

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

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

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk Ramp Grading</td>
<td>........................................................................</td>
</tr>
</tbody>
</table>

Sidewalk Ramp Grading applies to the ramps that are currently not ADA compliant and trench work is not causing reconstruction of the sidewalk ramp. Sidewalk Ramp Grading applies separately to each quadrant of an intersection where sidewalk is to be removed and graded for ADA compliance. The limits are specified on the plans or as directed by the Engineer.
DESCRIPTION
This work shall consist of removing and replacing existing sanitary lead pipe in new utility trenches as directed by engineer when conflicts with new utilities are identified or when the condition of the existing pipe prevents proper utility protection. Work includes cutting lead, carefully removing, replacing with SDR 35 PVC pipe and fittings along with Fernco connections. All materials need to accomplish this work is included in this pay item. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

CONSTRUCTION METHODS
The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications. Sewer leads are private and no official City records are kept. Approximate locations of leads have been placed on plans per survey data when available. Contractor to carefully excavate leads, not dig through lead but to saw cut out of way. Lead to be kept clean, have positive fall, and replaced as soon as possible. Contractor to coordinate with homeowner as needed to complete work. Trench must be carefully backfilled to prevent damage. Prior to placement of HMA contractor will have entire lead televised to verify condition of repaired sections and to verify sufficient slope has been provided. Any defects in the repaired sections shall be exposed and repaired at contractor’s expense.

MEASUREMENT AND PAYMENT
The unit price for the pay item "Remove Sanitary Sewer Lead" includes all labor, material and equipment costs associated with the complete installation of the sewer lead, as specified herein, including but not limited to, excavation MDOT CL II backfill, compaction.

Payment shall include all labor, equipment, and materials necessary to remove and store the existing sewer lead as directed by the Engineer.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove Sanitary Sewer Lead</td>
<td>Foot</td>
</tr>
</tbody>
</table>
DESCRIPTION
This work shall include abandoning existing water mains, valves, valve wells, valve boxes, pressure regulating valve vault, and fire hydrant assemblies of various sizes as required by the Plans. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

MATERIALS
All materials shall meet the requirements specified in Division 7 and 9 of the MDOT 2003 Standard Specifications for Construction as follows:
- Mortar Type II  Section 702
- MDOT Class II Sand   Section 902
- Masonry Units  Section 913
- Push-on joint plugs, caps, air relief assemblies (for grouting purposes), and thrust blocks shall conform to the City of Ann Arbor Standard Specifications.

METHODS OF CONSTRUCTION
The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.
In locations as shown on the Plans or where abandoned water main, valves or valve wells are within 2.5 feet of the proposed subgrade, the pipe, valves or valve wells shall be removed completely. The resulting hole or trench shall be backfilled with Class II Sand, in maximum lifts of 12 inches, and be compacted to 95% of its maximum unit weight, if located within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum unit weight, in lifts of 12 inches or less, unless otherwise noted on the plans. Caps or plugs shall be installed in accordance with plans or as specified by Engineer.
Abandoned (salvaged) valve operating nuts, fire hydrant assemblies, structure covers, and pressure regulating valve shall be delivered to the City of Ann Arbor Field Services Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108 within two days of their removal. Valve boxes should be disposed of at the contractor’s sole expense.

MEASUREMENT AND PAYMENT
The unit price for the Pay Item “Water Main Pipe Abandonment, Modified” shall be paid for on a lump sum (LS) basis and includes all labor, material and equipment costs necessary to abandon or remove the pipe including, but not limited to, excavation, cutting of pipe, push-on joint plugs, caps and thrust blocks, brick and mortar bulkheads, the furnishing, placement, and compaction of approved granular backfill material,
as required, and the removal and proper disposal off-site of excess materials. In addition, this pay item includes the removal and salvage of valves and covers, and disposal of valve boxes.

The unit price for the pay item "Fire Hydrant Assembly Abandonment," includes all labor, material and equipment costs associated with the complete removal of the existing fire hydrant assembly, as specified herein, including but not limited to, excavation, MDOT CL II Backfill and compaction; pipe cutting; thrust block removal; pipe plug; thrust block; salvaging of fire hydrant, valve and valve box and delivery of fire hydrant, valve and valve box to the City of Ann Arbor Field Services Unit.

The unit price for the Pay Item “Abandon Gate Well” includes all labor, material and equipment costs necessary to remove and salvage the valve and cover, and deliver to the City of Ann Arbor Field Services Unit; the removal of the top 4 feet of valve wells; breaking out the valve well base; the furnishing, placement, and compaction of approved granular backfill material, as required; and the removal and proper disposal off-site of excess materials.

The unit price for the Pay Item “Abandon Vault (PRV)” includes all labor, material and equipment costs necessary to remove the concrete well, piping, fittings and accessories as necessary to construct water main in accordance with City of Ann Arbor Specifications. The pay item includes, but is not limited to, excavation and cutting of pipe; removal and salvaging the pressure regulating valve and the manhole cover, and deliver to the City of Ann Arbor Field Services Unit; the removal of the top 4 feet of the vault and the portion of the vertical walls as necessary to install the replacement piping indicated on the plans; breaking out the valve well base; the furnishing, placement, and compaction of approved granular backfill material, as required; and the removal and proper disposal off-site of excess materials.

Installation of piping shall be paid for separately as “__ inch Class 50 DIP w/ polywrap, Trench Detail __”.  

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Main Pipe Abandonment, Modified</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Fire Hydrant Assembly Abandonment</td>
<td>Each</td>
</tr>
<tr>
<td>Abandon Gate Well</td>
<td>Each</td>
</tr>
<tr>
<td>Abandon Vault (PRV)</td>
<td>Each</td>
</tr>
</tbody>
</table>

The Item of work “Water Main Pipe Abandonment, Modified” will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.
DESCRIPTION
This work shall include all excavations, line stop contractor labor, materials, and backfill required to install a line stop on an existing water main. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

CONSTRUCTION METHODS
Construction shall meet all requirements of the City of Ann Arbor Standard Specifications. All excavation shall be of sufficient size that work can be performed safely. Line stop work shall be coordinated with proposed water main shut down. The line stop Contractor must be on site at all times during the line stop operation.

MEASUREMENT AND PAYMENT
The unit prices for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification. “Temporary Water Main Line stop, Additional Rental Day” will be paid for each day after the first installation and use day of a temporary water main line stop, regardless of size, until the line stop is no longer needed.

PAY ITEM                  PAY UNIT
Temporary Water Main Line Stop, Additional Rental Day  Each
Temporary Water Main Line Stop, Less than 8 inch  Each
Temporary 8 inch or 12 inch Water Main Line Stop  Each
Temporary 16 inch Water Main Line Stop  Each

Removal items associated with installation of line stops, such as HMA Pavement Removal and Machine Grading, will be paid for separately.

Backfill items associated with patching the excavation created by installing the line stop, such as Aggregate Base Course, 21AA- C.I.P. and Handpatching or HMA Pavement Leveling/Top - LVSP, will be paid for separately.
DETAILED SPECIFICATION
FOR
ITEM #229 – REINSTALL MODULAR BLOCK WALL
ITEM #230 – MACHINE GRADING, MODIFIED

Page 1 of 3

DESCRIPTION
This work shall consist of constructing earth grades by excavating, cutting, filling, trimming, and grading; general restoration, and sign removals in accordance with the Detailed Specifications elsewhere herein; and maintaining the work in a finished condition until such time that it is accepted by the Engineer. This work shall be done as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, and in accordance with Section 205 of the 2012 edition of the MDOT Standard Specification for Construction, except as specified herein.

CONSTRUCTION METHOD
The Contractor shall construct earth grades as required to develop the typical and/or detailed cross-section(s) as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer. This shall include, but not be limited to, the excavation of concrete and HMA pavement, soil, rocks of any size, stumps, trees less than 8 inches, logs, and bricks; the removal and proper disposal off-site of surplus excavated material; the scarifying, plowing, diskng, moving and shaping of earth; the trimming, grading, compaction and proof-rolling of the prepared subgrade; the importing, furnishing, placement and compaction of embankment and/or fill materials; the full depth saw-cutting of pavement at the removal limits; the grading of sideslopes; general restoration in accordance with the Detailed Specifications elsewhere herein and the general items of the work as specified herein. Road subbase and base materials shall be paid for separately.

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

The Contractor shall remove, salvage, deliver to any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove other surface features, including signs, located within the grading limits and not otherwise identified, as directed by the Engineer. Signs shall be salvaged and provided to City as directed by the Engineer.

The Contractor shall move excavated and/or imported materials longitudinally and/or transversely where necessary, and as directed by Engineer.

The Contractor shall keep the work well graded and drained at all times.

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

The Contractor is solely responsible for the maintenance and protection of the subgrade. Further, any
damage to the subgrade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or its subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the subgrade. The Contractor shall not be entitled to any additional compensation for the implementation of these procedures.

The Contractor shall perform all rough and/or finish grading and compaction to the grades shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The Contractor shall proofroll all graded and compacted surfaces in the presence of the Engineer as detailed in the Specifications. The Engineer will monitor the proofrolling operation to locate deleterious and/or uncompacted materials, and will direct undercuts as necessary.

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

The Contractor shall take any and all steps necessary to avoid interruption in the mail delivery, and solid waste, recycling, and compostable pick-up within the project limits. This shall include the temporary relocation of mailboxes, where required by the Engineer, as well as moving of all solid waste/recycling/compost containers to the nearest cross street.

The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots 2 inches or larger in size.

The Contractor shall install the salvaged modular retaining/landscape bricks per approved manufacturer’s specifications, including but not limited to installation of underdrain or geogrid.

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations. All restoration work and materials shall be in accordance with the Detailed Specifications “Clean-up & Restoration, Special”, “Fertilizer, Chemical Nutrient, Cl A”, “Mulch Blanket, High Velocity”, “Seeding Mixture THM”, and “Topsoil Surface, Furn, 4 inch.”

**MEASUREMENT AND PAYMENT**

Measurement for payment for the item “Reinstall Modular Block Wall” shall be measured along the surface area of the wall constructed.

Measurement for payment for the item “Machine Grading” shall be computed as the area of excavated material (pavement, soil, rock, brick, etc.) within the footprint of the proposed road section including to the edge of the 1:1 slope outside of road grading. Embankment, fill, subgrade protection/maintenance, drainage maintenance quantities will not be paid for separately, and are included in this item of work.
The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinstall Modular Block Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Machine Grading, Modified</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #235 –HMA PAVEMENT LEVELING/TOP – 4E3
ITEM #236 –HMA PAVEMENT LEVELING/TOP – 4E1
ITEM #237 –HMA PAVEMENT BASE – 3E3
ITEM #238 –HMA PAVEMENT BASE – 2C
ITEM #239 –HMA PAVEMENT BASE – 3C
ITEM #240 –HMA PAVEMENT LEVELING/TOP - LVSP
ITEM #241 – HMA APPROACH
ITEM #242 – HANDPATCHING
ITEM #243 – HMA TEMPORARY PAVEMENT

Page 1 of 4

DESCRIPTION
This work shall consist of constructing HMA pavement leveling and top courses in accordance with Division 5 and Section 904 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT
General
The HMA mixtures to be used for this work shall be as follows:

<table>
<thead>
<tr>
<th>WORK ITEM</th>
<th>MDOT HMA MIXTURE #</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Pavement Leveling/Top</td>
<td>4E1 and 4E3 and LVSP (Superpave)</td>
</tr>
<tr>
<td>HMA Pavement Base</td>
<td>2C and 3C and 3E3</td>
</tr>
<tr>
<td>HMA Approach</td>
<td>LVSP (Superpave)</td>
</tr>
<tr>
<td>Handpatching</td>
<td>LVSP (Superpave)</td>
</tr>
<tr>
<td>HMA Temporary Pavement</td>
<td>LVSP (Superpave)</td>
</tr>
</tbody>
</table>

Binders for LVSP Superpave mixes shall be PG 58-28; PG 64-28 or PG 70-28 for 4E1, as directed by Engineer. These shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

The Aggregate Wear Index (AWI) number is 260 for 4E1 and 220 for LVSP. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

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

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

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

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.10 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care...
DETAILED SPECIFICATION
FOR
ITEM #235 – HMA PAVEMENT LEVELING/TOP – 4E3
ITEM #236 – HMA PAVEMENT LEVELING/TOP – 4E1
ITEM #237 – HMA PAVEMENT BASE – 3E3
ITEM #238 – HMA PAVEMENT BASE – 2C
ITEM #239 – HMA PAVEMENT BASE – 3C
ITEM #240 – HMA PAVEMENT LEVELING/TOP - LVSP
ITEM #241 – HMA APPROACH
ITEM #242 – HANDPATCHING
ITEM #243 – HMA TEMPORARY PAVEMENT

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to avoid covering surfaces which are not to be paved. If work after October 15, 2021 is allowed by the Engineer, the SS-1h bond coat shall not be diluted by more than 25%.

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

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

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

HMA Pavement Leveling/Top – 4E3 top and leveling courses shall be placed in 2-inch lifts.

HMA Pavement Leveling/Top – 4E1 top and leveling courses shall be placed in 1-½-, 2-, or 2-½-inch lifts.

HMA Pavement Base – 3E3 base course shall be placed in a 3-½-inch lift.

HMA Pavement Base – 2C base course shall be placed in a 3-½-inch lift.

HMA Pavement Base – 3C base course shall be placed in a 2-inch lift.

HMA Pavement Leveling/Top - LVSP top and leveling courses shall be placed in a 2-inch lift.

HMA Approach top and leveling courses shall be placed in a 2-inch lift.

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

Temporary HMA LVSP shall be placed in 2-inch lifts.

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

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

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

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

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

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or
Detailed Specification

For

Item #235 – HMA Pavement Leveling/Top – 4E3
Item #236 – HMA Pavement Leveling/Top – 4E1
Item #237 – HMA Pavement Base – 3E3
Item #238 – HMA Pavement Base – 2C
Item #239 – HMA Pavement Base – 3C
Item #240 – HMA Pavement Leveling/Top - LVSP
Item #241 – HMA Approach
Item #242 – Handpatching
Item #243 – HMA Temporary Pavement

...contaminated sections of pavement, including sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer.

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

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

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

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

Measurement and Payment

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

Corrective action shall be enforced as described in the “Acceptance of HMA Mixtures” Detailed Specification and will be based on the City's testing reports.

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

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Pavement Leveling/Top – 4E3</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Pavement Leveling/Top – 4E1</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Pavement Base – 3E3</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Pavement Base – 2C</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Pavement Base – 3C</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Pavement Leveling/Top – LVSP</td>
<td>Ton</td>
</tr>
</tbody>
</table>
DETAILED SPECIFICATION
FOR
ITEM #235 – HMA PAVEMENT LEVELING/TOP – 4E3
ITEM #236 – HMA PAVEMENT LEVELING/TOP – 4E1
ITEM #237 – HMA PAVEMENT BASE – 3E3
ITEM #238 – HMA PAVEMENT BASE – 2C
ITEM #239 – HMA PAVEMENT BASE – 3C
ITEM #240 – HMA PAVEMENT LEVELING/TOP - LVSP
ITEM #241 – HMA APPROACH
ITEM #242 – HANDPATCHING
ITEM #243 – HMA TEMPORARY PAVEMENT

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<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA Approach</td>
<td>Ton</td>
</tr>
<tr>
<td>Handpatching</td>
<td>Ton</td>
</tr>
<tr>
<td>HMA Temporary Pavement</td>
<td>Ton</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, integral sidewalk curb, drive approaches, City of Ann Arbor Type M drive openings, all of any type and/or dimensions, all of either regular, fibermesh reinforced, and/or high-early concrete, in accordance with Sections 601, 602, 603, 801, 802, and 803 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

The Contractor is responsible to construct all sidewalks, sidewalk ramps, curbs, and all other concrete items within ADAAG compliance. All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Detail R-28 Series (version in place at time of the bid letting).

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

<table>
<thead>
<tr>
<th>Concrete Item</th>
<th>Concrete Mixture</th>
<th>MDOT Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Base Course</td>
<td>P1, 6-sack</td>
<td>601</td>
</tr>
<tr>
<td>Curb or Curb &amp; Gutter</td>
<td>P1, 6-sack</td>
<td>601</td>
</tr>
<tr>
<td>4&quot; or 6&quot; Sidewalk or Ramp</td>
<td>P1, 6-sack</td>
<td>601</td>
</tr>
<tr>
<td>6&quot; Drive or Sidewalk - High-Early</td>
<td>P-NC, 7-sack</td>
<td>601</td>
</tr>
<tr>
<td>Integral Sidewalk/Curb or Sidewalk/Rolled Curb</td>
<td>P1, 6-sack</td>
<td>601</td>
</tr>
<tr>
<td>Driveway Opening, Detail M – High Early</td>
<td>P-NC, 7-sack</td>
<td>601</td>
</tr>
</tbody>
</table>

CONSTRUCTION METHODS
General
Concrete items, including sidewalk, non-integral curb/gutter, drives, and structure adjustments shall be completed prior to the placement of pavement.

All subgrade work shall be completed prior to placing concrete items, unless directed or approved by the Engineer.

The subbase shall be trimmed to final elevation before placing curb. Curb shall not be placed on a pedestal or mound.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact Class II granular material and 21AA Aggregate material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

At locations where the constructed subbase becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subbase and replace it with "Sand Subbase Course, CL II - C.I.P.". If additional subgrade requires removal as directed by the Engineer refer to specification for “Subgrade Undercutting – Type II".
The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots with diameters 2” or greater.

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

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

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches, as shown on the Plans, as directed by the Engineer, and as marked for removal.

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

Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

Where concrete items are placed in areas adjacent to existing pavement that is beyond the general resurfacing (pavement removal and/or milling) limits, the adjacent pavement area shall be backfilled and permanently patched within 48-hours of the removal of concrete formwork. The backfill material shall be MDOT 21AA aggregate compacted in place to 95% of its maximum unit weight, up to the elevation of the proposed bottom of pavement. The pavement patching material(s) shall be as specified and as directed by the Engineer.

Where concrete items are placed adjacent to existing pavement that is within areas scheduled for subsequent pavement removal and/or milling, the adjacent pavement area shall, within 48-hours of the removal of concrete formwork, be backfilled with MDOT 21AA aggregate, as modified, compacted in place to 98% of its maximum unit weight, up to the elevation of the bottom of the adjacent pavement.

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

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

Contraction Joints in Sidewalk

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

Expansion Joints in Sidewalks

⅛-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property
lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

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

Expansion Joints in Curb and Gutter

¾-inch wide expansion joints shall be placed at all street returns, at all expansion joints in an abutting pavement, at each side of all driveways (at radius points), elsewhere at 300-foot maximum intervals, and as directed by the Engineer.

Expansion joint material shall extend to the full depth of the joint. After installation, the top shall not be above the concrete nor be more than ½-inch below it. No reinforcing steel shall extend through expansion joints.

Plane of Weakness Joints in Curb and Gutter

Intermediate plane of weakness joints shall be placed to divide the structure into uniform sections, normally 10-feet in length, with a minimum being 8-feet in length, and shall be placed opposite all plane of weakness joints in the abutting concrete base course.

Plane of weakness joints shall be formed by narrow divider plates, which shall extend 3-inches into the exposed surfaces of the curb or curb and gutter. Plates shall be notched, if necessary, to permit the steel reinforcement to be continuous through the joint.

MEASUREMENT AND PAYMENT

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

The removal of existing subgrade, or the installation of subbase or base necessary to construct item per City of Ann Arbor standards will be paid as “Machine Grading, Modified”, “Sand Subbase Course, Class II – C.I.P”, and “Aggregate Base Course, 21AA – C.I.P”. Removal of a greater depth, as directed by the Engineer, shall be paid for as “Subgrade Undercutting – Type II”. Replacement with approved "21AA Limestone, C.I.P.” will be paid for separately. Removal of existing earth where new sidewalk is installed will be paid for as “Sidewalk Ramp Grading.”

A deduction in length for catch basins and inlet castings will be made to measurements of Curb and Gutter.

Curb, gutter, curb and gutter, shall be paid as "Concrete Curb and Gutter – All Type", with the exception of Detail M Driveway Opening, which shall be paid as “Driveway Opening, Conc, Detail M”.

Payment for “4 Inch Concrete Integral Sidewalk/Curb” and “4 Inch Concrete Integral Sidewalk/Rolled Curb” shall be measured by the area of the sidewalk in square feet.

Payment for saw cutting for Type M openings and for partial removal of existing drives shall be included in the price for the item of work, “Remove Concrete Sidewalk and Drives - Any Thickness”, and will not be paid for separately.
Payment for the removal of HMA pavement and aggregate base to provide space for concrete formwork and vibratory plate compactor shall be included in the price for the item of work, “Remove Concrete Curb or Curb and Gutter - Any Type”, and will not be paid for separately.

The Item, “Detectable Warning, Cast In Place” will be measured and paid for by the square foot of area stamped, typically 2' x 5'. This measurement/payment is in addition to the measurement/payment for the concrete ramp placement.

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

<table>
<thead>
<tr>
<th>PAY ITEMS</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Base Course, Nonreinforced</td>
<td>Cubic Yard</td>
</tr>
<tr>
<td>Concrete Curb or Curb and Gutter – All Types</td>
<td>Feet</td>
</tr>
<tr>
<td>4 Inch Concrete Sidewalk</td>
<td>Square Feet</td>
</tr>
<tr>
<td>6 Inch Concrete Sidewalk Ramp</td>
<td>Square Feet</td>
</tr>
<tr>
<td>6 Inch Concrete Drive or Sidewalk - High Early</td>
<td>Square Feet</td>
</tr>
<tr>
<td>4 Inch Concrete Integral Sidewalk/Curb</td>
<td>Square Feet</td>
</tr>
<tr>
<td>4 Inch Concrete Integral Sidewalk/Rolled Curb</td>
<td>Square Feet</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #252 –DETECTABLE WARNING, CAST IN PLACE
Page 1 of 2

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

MATERIALS AND CONSTRUCTION METHODS
The detectable warning tiles shall be ceramic cement or composite polymer concrete (CRC), colored as Federal Number 22144 (frequently referred to as “Colonial Red” or “Brick Red”). The detectable warning tiles shall meet the following dimensions and tolerances:

1. Dimensions: Cast In Place Detectable/tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:
   - Length: 24”
   - Width: The full width of the approaching walk (60” for typical sidewalk)
   - Depth: 1.375” (1-3/8”) (+/-) 5% max.
   - Face Thickness: 0.1875” (3/16”) (+/-) 5% max. Warpage of Edge: 0.5% max.
   - Embedment Flange Spacing: shall be no greater than 3.1"
2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficient of Friction not to be less than 0.80 on top of domes and field area.
4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37±cycles per minute over a 10” travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be 3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
10. Fire Resistance of Tile when tested to ASTM E 84-05 flame spread shall be less than 15.
11. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. Ibf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.

Addendum1-DS-26
12. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result - E <4.5, as well as no deterioration, fading or chalking of surface.

13. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.

14. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.

15. AASHTO HB-17 single wheel HS20-44 loading "Standard Specifications for Highways and Bridges". The Cast In Place Tile shall be mounted on a concrete platform with a ½" airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.

16. Embedment flange spacing shall be no greater than 3.1" center to center spacing as illustrated on the product Cast In Place drawing.

CONSTRUCTION METHODS

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28 Series (included in Appendix).

MEASUREMENT AND PAYMENT

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detectable Warning, Cast In Place</td>
<td>Square Feet</td>
</tr>
</tbody>
</table>

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

*FOR*

ITEM #253 - PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, CROSSWALK  
ITEM #254 - PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, STOP BAR  
ITEM #255 - PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, LEFT TURN  
ITEM #256 - PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, BIKE  
ITEM #257 - PAVT MRKG, OVLY COLD PLASTIC, BIKE SYM  
ITEM #258 - PAVT MRKG, OVLY COLD PLASTIC, SHARROW SYMBOL  
ITEM #259 - PAVT MRKG, POLYUREA, 4 INCH, WHITE  
ITEM #260 - PAVT MRKG, POLYUREA, 4 INCH, YELLOW  
ITEM #261 - PAVT MRKG, POLYUREA, 6 INCH, WHITE  
ITEM #262 - RECESSING PAVT MRKG, LONGIT

**DESCRIPTION**

This work consists of providing and placing permanent pavement markings in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), last published at the time of advertisement. Provide pavement markings that conform to the Plans, the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, MDOT Pavement Marking Standard Plans, City of Ann Arbor Special Details, and as specified herein.

**MATERIALS**


**CONSTRUCTION METHODS**

The preparation and placement of permanent markings shall conform to section 811 of the MDOT 2012 Standard Specifications, the Plans, and as specified herein.

**MEASUREMENT AND PAYMENT**

Completed work, as described, will be measured and paid for at Contract Unit Prices for the following Contract (Pay) Items:

<table>
<thead>
<tr>
<th>PAY ITEMS</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Left Turn</td>
<td>Each</td>
</tr>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike</td>
<td>Each</td>
</tr>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, Bike Symbol</td>
<td>Each</td>
</tr>
<tr>
<td>Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol</td>
<td>Each</td>
</tr>
<tr>
<td>Pavt Mrkg, Polyurea, 4 inch, White</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Polyurea, 4 inch, Yellow</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Polyurea, 6 inch, White</td>
<td>Foot</td>
</tr>
<tr>
<td>Recessing Pavt Mrkg, Longit</td>
<td>Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the MDOT 2012 Standard Specifications for Construction and as modified by this Detailed Specification.
DETAILED SPECIFICATION
FOR
ITEM #263 PAVT MRKG COVER, TYPE R, BLACK
ITEM #264 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP
ITEM #265 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP
ITEM #266 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 6 INCH CROSSWALK
ITEM #267 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 24 INCH STOP BAR
ITEM #268 – LIGHTED ARROW BOARD, FURNISH AND OPERATE
ITEM #269 – SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE
ITEM #270 – PLASTIC DRUM – LIGHTED, FURNISH & OPERATE
ITEM #271 – BARRICADE TYPE III – LIGHTED, FURNISH AND OPERATE
ITEM #272 – TEMPORARY SIGN - TYPE B, FURNISH AND OPERATE
ITEM #273 – TEMPORARY SIGN - TYPE B, FURNISH AND OPERATE, SPECIAL
ITEM #274 – CHANNELIZING DEVICE, 42 INCH, FURNISH AND OPERATE
ITEM #275 – PEDESTRIAN TYPE II BARRICADE, TEMP
ITEM #276 – SIGN COVER

DESCRIPTION

This work shall consist of protecting and maintaining vehicular and pedestrian traffic, in accordance with Sections 812 and 922 of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

Materials and equipment shall meet the requirements specified in the above-designated sections of the MDOT Standard Specifications.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. Patch areas which extend more than halfway across the roadway shall always be removed and replaced to provide a minimum of half the pavement width for maintaining traffic.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Pedestrian Type II Barricade, Temp shall be placed by the Contractor, as directed by the Engineer. "Sidewalk Closed" and/or "Cross Here" signs shall be placed, by the Contractor, when directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor, EXCEPT Temporary Curb for Bump-out. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

Parking violation citations issued to the Contractor, subcontractor and material suppliers, including their employees, shall be enforced under appropriate City Code.
The Contractor shall replace missing or damaged traffic control devices, as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

The Contractor shall furnish and operate these items as directed by the Engineer.

Installation shall follow the manufacturer’s installation requirements.

**Plastic Drum – Lighted, Furnish and Operate; Barricade Type III – Lighted, Furnish and Operate; Temporary Sign, Type B, Furnish and Operate, Temporary Sign, Type B, Furnish and Operate, Special; Channelizing Device, 42 Inch, Furnish and Operate; Pedestrian Type II Barricade, Temp**

The Contractor shall furnish and operate these items as directed by the Engineer.

Temporary Signs, Type B, Special are specially made for this project and are not in the MMUTCD. See Sheet W. Liberty St. Traffic Control Sheets POE-Sta.6+00 (35 and 37).

Type II pedestrian barricades and type III barricades shall have standard orange-and-white stripes on both sides of the barricade.

Enough signs shall be provided by the Contractor to insure the safety of the workers and the general public in accordance with the current MMUTCD.

"Construction Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.

**MEASUREMENT AND PAYMENT**

**General**

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

Costs for transporting barricades and other traffic control devices shall be included in the bid prices for the individual items of work.

**Pavt Mrkg Cover, Type R, Black**
Payment for Type R Black Pavt Mrkg shall be for the maximum quantity used on each street.

**Pavt Mrkg, Type R, Tape**
Payment for Type R Tape shall be for the maximum quantity used on each street.

**Plastic Drum – Lighted, Furnish and Operate**
There will be a one-time payment for each street for the maximum number of lighted drums in-place (operated) at any one time, as directed by the Engineer.

**Barricade Type III – Lighted, Furnish and Operate**
Payment for furnishing and operating lighted type III barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).
Temporary Sign - Type B, Furnish and Operate
Payment for Type B signs shall be for the maximum quantity used on each street.

Temporary Sign - Type B, Furnish and Operate, Special
Payment for Type B signs shall be for the maximum quantity used on each street.

Channelizing Device, 42 Inch, Furnish and Operate
There will be a one-time payment for each street for the maximum number of channelizing devices in-place (operated) at any one time, as directed by the Engineer.

Pedestrian Type II Barricade, Temp
Payment for furnishing and operating type II pedestrian barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

Lighted Arrow Board, Furnish and Operate
Measurement for furnishing and operating lighted arrow board will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

Sign, Portable Changeable Message, Furnish and Operate
Measurement for furnishing and operating portable changeable message signs will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

Sign Cover
There will be a one-time payment for each street for the maximum number of sign covers in-place (operated) at any one time, as directed by the Engineer.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavt Mrkg Cover, Type R, Black</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch Crosswalk</td>
<td>Foot</td>
</tr>
<tr>
<td>Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch Stop Bar</td>
<td>Foot</td>
</tr>
<tr>
<td>Lighted Arrow Board</td>
<td>Each</td>
</tr>
<tr>
<td>Sign, Portable Changeable Message, Furnish and Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Plastic Drum - Lighted - Furnish&amp; Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Barricade Type III - Lighted - Furnish and Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Temporary Sign, Type B - Furnish and Operate</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Temporary Sign, Type B - Furnish and Operate, Special</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Channelizing Device, 42 inch, Furnish and Operate</td>
<td>Each</td>
</tr>
<tr>
<td>Pedestrian Type II Barricade, Temp</td>
<td>Each</td>
</tr>
<tr>
<td>Sign Cover</td>
<td>Each</td>
</tr>
</tbody>
</table>
DETAILED SPECIFICATION
FOR
ITEM #290 – ADJUST STRUCTURE COVER
ITEM #291 – ADJUST MONUMENT BOX, VALVE BOX, OR GAS BOX
ITEM #292 – STRUCTURE COVERS

Page 1 of 2

DESCRIPTION
This work shall consist of adjusting, replacing, and pointing structures, handholes, valve wells or boxes, and monument boxes of concrete and concrete block masonry; the replacing, salvaging and transporting of new and existing metal covers, and/or castings; including all excavation, backfilling, patching and the removal and proper disposal off-site of all excavated material and debris, all in accordance with Division 4 of the 2012 edition of the MDOT Standard Specifications for Construction, and the City Standard Specifications, except as specified herein, and except as directed by the Engineer.

MATERIALS
Materials shall meet the requirements of sections 403 and 601 of the 2012 edition of the MDOT Standard Specifications, except that concrete shall be MDOT P-NC per Section 601 of the 2012 MDOT Standard Specifications.

CONSTRUCTION METHODS
General

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials or equipment, including metal castings and steel plates, on any lawn area.

Hidden, or unknown utility structures may be encountered during the work. It is the Contractor's responsibility to inform the respective utility owner(s) of such findings. In such instances, the City may direct the Contractor to adjust the structure(s) to grade. This work will be paid as “Adjust Structure Cover”.

The pointing of structures is included in all adjustments.

Adjust Structure Cover

This item includes the final adjustment of castings of any type (including drop inlets) to their respective finished elevations, up or down. All materials required to make the adjustments shall be included in this item of work.

All underground structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as shown on the Plans, and as directed by the Engineer. The work shall be verified by the use of a 10-foot straight-edge placed parallel with the pavement centerline. Structures not meeting the ¼-inch tolerance shall be readjusted and finish patched, as directed by the Engineer, at the Contractor's expense.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item “General Conditions.”

All structure covers, utility covers, valve boxes or monument boxes shall be backfilled with MDOT P-NC concrete from the depth of excavation necessary for adjustment, up to an elevation 2-inches below the top flange of the adjusted
DETAILED SPECIFICATION
FOR
ITEM #290 – ADJUST STRUCTURE COVER
ITEM #291 – ADJUST MONUMENT BOX, VALVE BOX, OR GAS BOX
ITEM #292 – STRUCTURE COVERS

Page 2 of 2

casting. This work shall be included in the respective items of work, and will not be paid for separately.

Adjust Monument Box or Valve Box, and Traffic Signal Handhole

This item includes the final adjustment of existing or new covers/castings and traffic signal handholes (traffic signal handhole adjustments will be paid for as “Adjust Structure Cover”) up or down, to their finished elevations. This also includes the replacement of the top half of the water boxes and monument boxes (furnished by the City) where required, and shall be included in this item of work.

Castings and covers for monument and water-valve boxes will be provided by the City. The Contractor shall transport these new castings and covers to the site from the City Utilities Department yard at 4251 Stone School Road (Wheeler Center).

Structure Covers

This item shall consist of replacing covers and/or castings for manhole structures and inlet structures as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified in appendix.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center within two days of their removal.

MEASUREMENT AND PAYMENT

Payment for transporting new and salvaged castings and covers to and from the Wheeler Center is included in the appropriate items of work.

Furnishing and placing concrete as backfill for these items will not be paid separately, but shall be included in the bid prices for these items of work.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust Structure Cover</td>
<td>Each</td>
</tr>
<tr>
<td>Adjust Monument Box, Valve Box, or Gas Box</td>
<td>Each</td>
</tr>
<tr>
<td>Structure Cover</td>
<td>Pounds</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This work shall consist of furnishing and installing 6-inch diameter geotextile-wrapped, perforated or slotted underdrain pipe, using MDOT 2NS, as directed by the Engineer, for all backfill material.

MATERIALS
The materials shall meet the requirements referenced in Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The Geotextile Filter Fabric for encasing the underdrain pipe shall be an approved material such as nylon, polypropylene, fiberglass, or polyester, and shall be either woven, heat bonded, knitted, or of continuous fibers. The geotextile shall completely cover and be secured to the pipe. In an un-stretched condition, knitted polyester fabrics shall weigh at least 3.0 ounces per square yard, and all other geotextiles shall weigh at least 3.5 ounces per square yard. The fabric shall be strong and tough and have a porosity such that the fabric will retain soil particles larger than 0.106 mm (no. 140 sieve) and shall pass aggregate particles finer than 0.025 mm. Geotextiles shall be stored and handled carefully and in accordance with the both the manufacturer's recommendations and the Engineer's direction, and shall not be exposed to heat or direct sunlight. Torn or punctured geotextiles shall not be used.

CONSTRUCTION METHODS
Geotextile wrapped underdrain shall be installed as shown on the Plans or as directed by the Engineer and in accordance with Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The installation of underdrain shall precede all other construction activities including but not limited to pavement milling, pavement pulverization, pavement removal, pavement patching, and curb repair.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT 2NS fine aggregate to construct underdrain as specified on the Plans, and as directed by the Engineer.

The trench shall be constructed to have a minimum width of 18-inches, and shall be typically excavated to the depth specified in the Plans or directed by the Engineer.

The underdrain shall be installed at the line, grade, and depth specified on the Plans or as directed by the Engineer. The minimum percent grade shall be 0.5%, and the minimum cover from top-of-pipe to finished top-of-curb grade shall be 4-feet. The Contractor shall maintain line and grade by means of a laser. The Engineer will not provide line, grade or staking.

Upgrade ends of the pipe shall be closed with suitable plugs to prevent entrance of trench backfill material. All couplings, tees, plugs, and other fittings shall be manufactured and installed so as to prevent any infiltration of trench backfill material.

The Contractor shall tap at least one end of the underdrain into a storm sewer structure, as directed by the Engineer.

During the construction of underdrain runs, the Engineer may direct the Contractor to terminate or modify underdrain construction due to conflicts with buried obstructions or if the minimum 4-foot cover cannot be maintained. There will be no adjustment to the Contract Unit Price due to changes in quantity.

The first lift (bedding) of backfill shall be MDOT 2NS material to a maximum thickness of 3-inches. Subsequent lifts shall be MDOT 2NS material to a maximum thickness of 12 inches.
DETAILED SPECIFICATION
FOR
#315 – 6-INCH WRAPPED EDGE DRAIN

Page 2 of 2

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

All structures, inlets and manholes shall be maintained free of accumulations of silt, debris, and other foreign matter throughout construction, until the time of final acceptance.

MEASUREMENT AND PAYMENT

Connecting (tapping) underdrain(s) into drainage structure(s) will not be paid for separately, but shall be included in the bid price for this item of work.

Underdrain will be measured in-place by length in lineal feet.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-Inch Wrapped Underdrain</td>
<td>Foot</td>
</tr>
</tbody>
</table>

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
DESCRIPTION
This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction with regard to Fire Hydrant Assembly.

MATERIALS
Fire hydrants shall be either the East Jordan Model Watermaster 5BR250 with traffic flange, or the Waterous Pacer Model WB67-250 with traffic flange. All fire hydrants shall have the following features: a 6 inch push-on tyton joint connection, ANSI/AWWA C111/A21.11; one 5 inch storz connection; one 3-3/8 inch threaded Ann Arbor Standard pumper connection with 7-1/2 threads per inch and 4.05 in. O.D.; 1-3/8 inch pentagon operating and cap nuts (1-3/8 in. point-to-flat at top; 1-7/16 in. point-to-flat at base); open left; breakable flange construction; no barrel drain; and a painted red finish. Depth of bury (bottom of pipe to ground surface) is generally 6 feet but may vary depending on specific site conditions. The pumper nozzles must be 21 in. ± 3 in. above finished grade, and the breakable traffic flange must be between finished grade and 8 in. above finished grade. Fire hydrant extensions for Waterous hydrants shall be Waterous Part # K562. Extensions for East Jordan hydrants shall be hydrant model 5BR250 extension kits. All fire hydrants must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Hydrant Assembly</td>
<td>Each</td>
</tr>
</tbody>
</table>

Fire hydrant assemblies shall be measured per unit constructed and paid for on the basis of unit price each. The unit price for fire hydrant assemblies shall include a 6-inch gate valve in box, 3 lineal feet of 6 inch pipe, an approved hydrant with traffic flange, and a thrust block. Any required extension will be paid for separately, on a per each installed basis.
1.01 PRESSURE REDUCING VALVE

A. Supply a 10 inch Singer Model 106-PR Pressure Reducing Control Valve. To ensure compliance with city standards and consistency of equipment throughout the water distribution system, alternate manufacturers will not be considered.
   
   a. The valve shall be equipped with the following available options:
      i. X107 position indicator with bleed/vent cock
      ii. (3) stainless steel pilot system isolation valves
      iii. Stainless steel 40 mesh strainer
      iv. Stainless steel open/close speed control valves
      v. Braided stainless steel pilot tubing

B. Function: The valve shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall maintain a relatively constant downstream pressure regardless of fluctuations in supply pressure or flow rate.

C. Operation: The pilot shall be a normally open Singer Model 160 Pressure Reducing Pilot that reacts to small changes in downstream pressure which acts to modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position to maintain a constant downstream pressure.

1.02 Quality Assurance

A. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.

B. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.

C. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer’s recommendations.

1.03 Main Valve

A. The main valve shall be a Singer 106-PG single chamber, diaphragm actuated full port model.

B. Main valves, 6" (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability to 1 USGPM, achieved using SRD-Single Rolling Diaphragm technology.

C. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.

D. Main valves of 2.5" (65mm) and larger shall have a removable stem cap for access to the main valve stem for alignment check, spring installation and ease of service and assembly.

E. The main valve bonnet shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.

F. The main valve trim, consisting of seat ring and stem shall be constructed of AISI 316 stainless steel. The valve stem shall have wrench flats for ease of maintenance.

G. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.

H. The stationary AISI 316 stainless steel seat ring of main valves 2.5" (65mm) and larger shall be held in place using Spiralock® self locking screws and seat ring retainers.

I. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.

J. The main valve elastomers: diaphragm, resilient disc and seals, shall be of EPDM or Buna-N.

K. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.
L. Valve shall have flanged end connections. Flanged connections shall be ANSI/ASME B16.42 Class 150# flange drilled, faced and rated. Threaded connections shall be specify NPT.

M. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.

N. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.

O. Valve body shall have additional 1” body tap to accommodate installation of a single point insertion (SPI) meter.

1.04 Pilot Controls

A. The pressure reducing pilot shall be a Singer Model 160 normally open pilot with a spring to adjust the pressure setting. The pilot shall be self-cleaning and self-flushing with the outlet of the pilot located at the bottom of the pilot flow with the pilot stem out of the waterway and guide free from any debris build-up.

B. The pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.

C. The pilot elastomers: diaphragm, inner valve and seals, shall be of EPDM or Buna-N.

D. The adjustable pilot spring range shall be supplied with a spring range of 20 to 200psi. The pilot shall be factory preset at specify setpoint psi.

E. The pilot body and spring casing shall be constructed of ASTM A351 CF8M stainless steel.

F. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.

G. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly. Optional for main valve sizes 10” (250mm) and larger.

H. The pilot fittings shall be supplied as AISI 316 stainless steel.

I. The pilot tubing shall be supplied as PTFE lined flexible braided stainless steel.

J. For valves 4” (100mm) and larger, (3) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of 316 stainless steel handle operator.

K. For valves 4” (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.
DESCRIPTION
This work shall consist of furnishing, transporting, and installing a precast concrete vault for water main pressure reducing valve in accordance with the City of Ann Arbor Standard Specifications, as shown on the plans, and as specified herein.

MATERIALS
All concrete shall have a 28 day compressive strength of 4500 psi. Reinforcing steel shall comply with ASTM A615 Grade 60 rebar. Bar bending and placement shall comply with the latest ACI standards. Standard structural design based on AASHTO HS20 wheel loading. One-inch butyl rubber rope mastic is required for placement between top and bottom sections of vault.

Structure covers shall be paid for separately.

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>60” x 120” Concrete Vault (PRV)</td>
<td>Each</td>
</tr>
</tbody>
</table>
DETAILED SPECIFICATION
FOR
ITEM #701 – EROSION CONTROL, TRENCH DRAIN INLET FILTER
ITEM #702 – EROSION CONTROL, INLET PROTECTION
ITEM #703 – EROSION CONTROL, SILT FENCE

DESCRIPTION

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

This work consists of installing and maintaining inlet filters and silt fence in accordance with Section 208 of the 2012 Michigan Department of Transportation Standard Specifications for Construction and as shown on the plans. Filters in existing and proposed inlets, as well as silt fence downstream of construction area, shall be installed in order to minimize the erosion of soil and the sedimentation of water courses. The related work includes the installation, maintenance, and removal of the filters and fence, cleaning as required during the performance of the project work, removing and disposing of accumulated sediment, and replacement of filters if required by the Engineer so as to provide a properly working inlet filter and a well-drained site.

MATERIALS

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

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

METHODS OF CONSTRUCTION

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

MEASUREMENT AND PAYMENT

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

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Control, Trench Drain Inlet Filter</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Inlet Protection</td>
<td>Each</td>
</tr>
<tr>
<td>Erosion Control, Silt Fence</td>
<td>Foot</td>
</tr>
</tbody>
</table>

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.
Note: Proposed soil boring locations will be marked by the City of Ann Arbor with seven (7) days of advance notice from drilling contractor. Locations will typically alternate lanes/sides of street.
### DESCRIPTION OF STRATA

<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>DESCRIPTION OF STRATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5.25&quot; ASPHALT PAVEMENT</td>
</tr>
<tr>
<td></td>
<td>SAND (SW) - brown, fine to coarse, some gravel, dry</td>
</tr>
<tr>
<td></td>
<td>SAND (SW) - brown, fine to coarse, some silt, trace gravel, occasional clay pockets, medium dense, moist</td>
</tr>
<tr>
<td></td>
<td>SAND (SW) - brown, fine to coarse, some gravel and silt, occasional clay pockets, medium dense, moist</td>
</tr>
<tr>
<td>5</td>
<td>End of Boring</td>
</tr>
</tbody>
</table>

**LEGEND**

- **SS-1**
- **SS-2**

**MOISTURE**

- Sample Recovery
- UCS (tsf)
- Hand penetrometer
- UCS (tsf)
- Fines Content (%)
- SPT N Value

**Notes:**
- Filled with auger cuttings and patched

---

**Groundwater During Drilling:** N/A

**Groundwater After Drilling:** N/A

**Cave-in Depth:** N/A

**End of Boring:** 5 ft
4.5" ASPHALT PAVEMENT

SAND (SW) - brown, fine to coarse, some gravel, dry

SAND (SW) - brown, fine to coarse, some silt, trace gravel, occasional clay pockets, medium dense, moist

Boring Terminated on Obstruction

Notes: Filled with auger cuttings and patched
"General Decision Number: MI20210074 01/01/2021

Superseded General Decision Number: MI20200074

State: Michigan

Construction Type: Heavy

County: Washtenaw County in Michigan.

Heavy, Includes Water, Sewer Lines and Excavation (Excludes Hazardous Waste Removal; Coal, Oil, Gas, Duct and other similar Pipeline Construction)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number      Publication Date
                         01/01/2021

CARP0687-006 06/01/2020

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARPENTER, Includes Form Work....$</td>
<td>34.20</td>
</tr>
</tbody>
</table>
### ELEC0252-009 06/01/2020

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELECTRICIAN</strong></td>
<td>$47.46</td>
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</tbody>
</table>

* ENGI0325-019 09/01/2020

### POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POWER EQUIPMENT OPERATOR</strong></td>
<td></td>
</tr>
<tr>
<td>GROUP 1</td>
<td>$35.88</td>
</tr>
<tr>
<td>GROUP 2</td>
<td>$31.15</td>
</tr>
<tr>
<td>GROUP 3</td>
<td>$30.42</td>
</tr>
<tr>
<td>GROUP 4</td>
<td>$29.85</td>
</tr>
</tbody>
</table>

### POWER EQUIPMENT OPERATOR CLASSIFICATIONS

- **GROUP 1**: Backhoe/ Excavator, Boring Machine, Bulldozer, Crane, Grader/ Blade, Loader, Roller, Scraper, Trencher (over 8 ft. digging capacity)
- **GROUP 2**: Trencher (8-ft digging capacity and smaller)
- **GROUP 3**: Boom Truck (non-swinging, non-powered type boom)
- **GROUP 4**: Broom/ Sweeper, Fork Truck, Tractor, Bobcat/ Skid Steer /Skid Loader

---

### ENGI0326-008 06/01/2020

### EXCLUDES UNDERGROUND CONSTRUCTION

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPERATOR: Power Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>GROUP 1</td>
<td>$42.69</td>
</tr>
<tr>
<td>GROUP 2</td>
<td>$41.19</td>
</tr>
<tr>
<td>GROUP 3</td>
<td>$39.69</td>
</tr>
<tr>
<td>GROUP 4</td>
<td>$39.39</td>
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<tr>
<td>GROUP 5</td>
<td>$38.57</td>
</tr>
<tr>
<td>GROUP 6</td>
<td>$37.71</td>
</tr>
<tr>
<td>GROUP 7</td>
<td>$36.74</td>
</tr>
<tr>
<td>GROUP 8</td>
<td>$35.03</td>
</tr>
</tbody>
</table>
GROUP 9........................$ 26.69          24.95

FOOTNOTES: Tower cranes: to be paid the crane operator rate determined by the combined length of the mast and the boom.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with boom & jib or leads 400' or longer
GROUP 2: Crane with boom & jib or leads 300' or longer
GROUP 3: Crane with boom & jib or leads 220' or longer
GROUP 4: Crane with boom & jib or leads 140' or longer
GROUP 5: Crane with boom & jib or leads 120' or longer
GROUP 6: Regular crane operator

GROUP 7: Backhoe/Excavator, Bobcat/Skid Loader, Boring Machine, Broom/Sweeper, Bulldozer, Grader/Blade, Loader, Roller, Scraper, Tractor, Trencher

GROUP 8: Forklift

GROUP 9: Oiler

------------------------------------------------------------------------------------------------------------------
IRON0025-006 06/01/2019

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcing</td>
<td>$ 30.98</td>
</tr>
<tr>
<td>Structural</td>
<td>$ 36.77</td>
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</tbody>
</table>

------------------------------------------------------------------------------------------------------------------
LABO0334-009 06/01/2019

EXCLUDES OPEN CUT CONSTRUCTION

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape</td>
<td></td>
</tr>
<tr>
<td>GROUP 1</td>
<td>$ 20.75</td>
</tr>
<tr>
<td>GROUP 2</td>
<td>$ 18.75</td>
</tr>
</tbody>
</table>

LANDSCAPE LABORER CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator, lawn sprinkler installer and skidsteer
GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

SCOPE OF WORK:
OPEN CUT CONSTRUCTION: Excavation of earth and sewer, utilities, and improvements, including underground piping/conduit (including inspection, cleaning, restoration, and relining)

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.75</td>
<td>12.85</td>
</tr>
<tr>
<td>23.86</td>
<td>12.85</td>
</tr>
<tr>
<td>24.05</td>
<td>12.85</td>
</tr>
<tr>
<td>22.90</td>
<td>12.75</td>
</tr>
<tr>
<td>22.90</td>
<td>12.85</td>
</tr>
<tr>
<td>18.14</td>
<td>12.85</td>
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</tbody>
</table>

EXCLUDES OPEN CUT CONSTRUCTION

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.37</td>
<td>40.40</td>
</tr>
<tr>
<td>29.58</td>
<td>40.40</td>
</tr>
<tr>
<td>29.71</td>
<td>40.40</td>
</tr>
</tbody>
</table>

LABORER CLASSIFICATIONS

GROUP 1: Common or General; Grade Checker

GROUP 2: Mason Tender - Cement/Concrete

GROUP 3: Pipelayer
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAINTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush &amp; Roller.................</td>
<td>$25.06</td>
<td>14.75</td>
</tr>
<tr>
<td>Spray..........................</td>
<td>$25.86</td>
<td>14.75</td>
</tr>
<tr>
<td><strong>CEMENT MASON/CONCRETE FINISHER</strong></td>
<td>$31.47</td>
<td>13.81</td>
</tr>
<tr>
<td><strong>PLUMBER</strong></td>
<td>$42.26</td>
<td>23.70</td>
</tr>
<tr>
<td><strong>TRUCK DRIVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dump Truck under 8 cu. yds.; Tractor Haul Truck...</td>
<td>$27.90</td>
<td>.50 + a+b</td>
</tr>
<tr>
<td>Dump Truck, 8 cu. yds. and over........................</td>
<td>$28.00</td>
<td>.50 + a+b</td>
</tr>
<tr>
<td>Lowboy/Semi-Trailer Truck......</td>
<td>$28.15</td>
<td>.50 + a+b</td>
</tr>
<tr>
<td><strong>FOOTNOTE:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. $470.70 per week.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. $68.70 daily.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TRUCK DRIVER:</strong> Off the Road</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck..........................</td>
<td>$20.82</td>
<td>3.69</td>
</tr>
<tr>
<td><strong>WELDERS</strong> - Receive rate prescribed for craft performing operation to which welding is incidental.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.
Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on
a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

================================================================
END OF GENERAL DECISION
### Defect Listing

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**Remarks:** 71-71026

**Remarks:** 71-71025
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Remarks: 71-71025

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### Additional Details

**Pipe Segment Reference:** 74-71211
**City:** Ann Arbor
**Street:** W Liberty St
**Material:** Vitrified Clay Pipe

**Upstream MH:** 71-71025
**Total Length:** 320.9
**Year Laid:**
**Circular:**

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**Remarks:**
- Water Level
- Tap Factory Made Active
- Tap Factory Made
- Fracture Longitudinal
- Tap Factory Made
- Tap Factory Made Capped
- Tap Factory Made
- Infiltration Weeper
- Deposits Attached Grease
- Tap Factory Made
- Tap Factory Made
- Tap Factory Made
- Tap Break-In
- Tap Factory Made
- Roots Fine Joint S01
- Tap Factory Made
- Tap Factory Made
- Roots Fine Joint F01
- Access Point Manhole
### Defect Listing

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### Remarks:

- 91-71046
  - Access Point Manhole
  - Water Level

- 11.9
  - Roots Fine Joint
  - %

- 43.8
  - Tap Factory Made

- 52.5
  - Roots Fine Joint

- 56
  - Tap Factory Made

- 56.7
  - Roots Fine Joint

- 67.7
  - Access Point Manhole

### Additional Info:

- 0 Access Point Manhole
  - 5
  - %

- 12
  - 1

- 10
  - 1

- 2
  - 1

- 12
  - 1

### Survey Details:

- Customer: Upstream
- Work Order: JBELL
- Pre-cleaning: No Pre-cleaning
- Date: 03/25/2021
- Time: 12:36
- Weather: Dry
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Remarks: 71-71046

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Remarks: 71-70794

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**Remarks:**
- Water Level
- Tap Factory Made
- Fracture Spiral S01
- Tap Factory Made
- Tap Factory Made
- Tap Factory Made
- Tap Factory Made
- Tap Factory Made
- Roots Fine Joint
- Tap Factory Made
- Roots Fine Joint
- Tap Break-In
- Tap Factory Made
- Tap Factory Made Defective
- Tap Break-In Intruding
- Fracture Spiral F01
- Access Point Manhole

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**Remarks:**
- Packed with roots
- Tap Break-In Intruding
- Fracture Spiral F01
- Access Point Manhole
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MAXIMUM SIDE FLARE SLOPE REDUCED TO ACCOMMODATE FULL CURB HEIGHT MAY BE RAMP SIDE FLARE SIDE FLARE 5' MIN. SIDE FLARE 100% MAX. SIDE FLARE 100% MAX. (SEE NOTES) (SEE NOTES) (SEE NOTES) FULL CURB HEIGHT MAY BE REDUCED TO ACCOMMODATE MAXIMUM SIDE FLARE SLOPE CURB RAMP TYPE R (ROLLED SIDES) LANDING PERMANENT OBSTRUCTION NON-WALKING AREA DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH (SEE NOTES) DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH (SEE NOTES) CURB RAMP TYPE F (FLARED SIDES, TWO RAMPS SHOWN) LANDING DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH (SEE NOTES) DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH (SEE NOTES) 5% - 7% (8.3% MAXIMUM). SEE NOTES. MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE ** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES. ** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.
**maximum landing slope is 2.0%. in each direction of travel, landing minimum dimensions 5' x 5'. see notes.**

**maximum ramp cross slope is 2.0%, running slope 5% - 7% (8.3% maximum). see notes.**

### Curbed Ramp Type RF
(Rolled / Flared Sides)

- Pavement
- Curb Ramp Opening
- Curb Ramp Run
- Landing

- **Maximum Rise**
  - A: \( \frac{3}{4} \) in.
  - B: 1 in.

- Detectable Warning Surface
  - 24" across full width (see notes)

- **Ramp Slope**
  - 5% - 7% (8.3% maximum) see notes

- **Ramp and Landing Slab Thicknesses**
  - Shall be as called for on the plans

---

**Section A-A**

**Section Through Curb Ramp Opening**
(Typical All Ramp Types)

- Pavement shall end flush with the gutter pan
- **Ramp Slope**
  - Not to exceed maximum rise B
- **Maximum Counter Slope**
  - Across the ramp opening

**Transition Adjacent Gutter Pan**

- **Maximum 5.0%**

**Lane Tie and Reinforcement**
As in adjacent curb & gutter
See standard plan R-30-Series

---

**Michigan Department of Transportation**

**Bureau of Development Standard Plan for**

**Curb Ramp and Detectable Warning Details**

---

Addendum1-Apdx-86
**MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.**

**MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.**

*CURB RAMP TYPE P*
(Parallell Ramp)

**DO NOT USE IN AREAS WHERE PONDING MAY OCCUR**

**DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH (SEE NOTES)**

*CURB RAMP TYPE C*
(Combination Ramp)

**DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.**

*CURB RAMP TYPE M*
(Median Island)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

R-28-J SHEET 3 OF 7
** MAXIMUM LANDING SLOPE IS 2.0%. IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.

2" MAXIMUM DETECTABLE WARNING BORDER OFFSET MEASURED FROM THE ENDS OF THE RADIUS. SEE NOTES

(RADIAL DETECTABLE WARNING SHOWN)

2" MAXIMUM DETECTABLE WARNING BORDER OFFSET MEASURED FROM THE ENDS OF THE RADIUS. SEE NOTES

(TANGENT DETECTABLE WARNING SHOWN)

CURB RAMP TYPE D
(DEPRESSED CORNER)

USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CANNOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

CURB RAMP AND DETECTABLE WARNING DETAILS

Addendum1-Apdx-88
The detectable warning surface shall be located so that the edge nearest the rail crossing is 6' minimum and 15' maximum from the centerline of the nearest rail. Do not place detectable warning on railroad crossing material.

Detectable warning at railroad crossing:

Detectable warning at flush shoulder or roadway:

Michigan Department of Transportation
Bureau of Development
Standard Plan for
Curb Ramp and
Detectable Warning Details

5-8-2020
R-28-J
Sheet 5 of 7
SECTION B-B

CURB RAMP ORIENTATION

- Grade breaks at the top and bottom of curb ramps shall be perpendicular to the direction of travel.
- Transition adjacent gutter pan cross section to provide 5.0% maximum counter slope across the ramp opening.
- See Sheet 2 for curb ramp opening details.

CURB RAMP AND DETECTABLE WARNING DETAILS

Michigan Department of Transportation
Bureau of Development Standard Plan for

Addendum1-Apdx-90

WITH THE ADJACENT CONCRETE.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH.

MUNICIPALITY.

SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE 24”.

DOME ALIGNMENT

DETECTABLE WARNING DETAILS

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

CURB RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP, WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5’ MINIMUM WIDTHS ARE NOT PRACTICABLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4’ AND LANDINGS TO NOT LESS THAN 4’ x 4’.

CURB RAMPS WITH A RUNNING SLOPE ≤5% DO NOT REQUIRE A TOP LANDING. HOWEVER, ANY CONTINUOUS SIDEWALK OR PEDESTRIAN ROUTE CROSSING THROUGH OR INTERSECTING THE CURB RAMP MUST INDEPENDENTLY MAINTAIN A CROSS SLOPE NOT GREATER THAN 2% PERPENDICULAR TO ITS OWN DIRECTION(S) OF TRAVEL.

DETECTABLE WARNING SURFACE COVERAGE IS 24” MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURVED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2” MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH NOT INCLUDING LANDINGS OR TRANSITIONS.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL USE A MANUFACTURER’S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN 1/2”. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE CURB RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS Bordered BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS

5-8-2020 R-28-J SHEET 1 OF 1
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NOTES:
*FRAMES AND COVERS MUST HAVE MACHINED BEARING SURFACES.
**MANHOLE COVERS SHALL BE LABELED WITH "CITY OF ANN ARBOR" AND "WATER", "STORM" OR "SANITARY", WHICHEVER IS APPLICABLE. ALL COVERS SHALL INCLUDE THE CITY'S CUSTOM LOGO IN USE AT THE TIME OF THE PROJECT.
***SANITARY MANHOLE COVERS SHALL BE 1040AGS WITH A 1/4" NEOPRENE GASKET TO SEAL AGAINST THE FRAME.
CUSTOM LOGO

1 1/2" SHARP FACE
GOTHIC

(2) EPIC®
PICKHOLES

1 1/2" SHARP FACE
GOTHIC

26"

2 3/16"

1 1/2"

1 3/4"

1"

1/4" DIA
NEOPRENE GASKET

25 1/8"
O.D. OF GASKET GROOVE

EPIC® DETAIL

.180"

.240"

REVISED
1-24-19
CUSTOM LOGO

1 1/2" SHARP FACE GOTHIC

1 1/2"

2 3/16"

26" DIA

1 1/2"

(2) EPIC® PICKHOLES

BOTTOM VIEW

SECTION

EPIC® DETAIL

CITY OF ANN ARBOR
STEAM

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

EJ PRODUCT #001040325

REVISED 1-24-19

Addendum1-Apdx-94
CONSTRUCTION NOTES:

1. All work shall be in accordance with all applicable City of Ann Arbor City Codes, Ordinances, and Regulations.
2. Construction shall be in strict accordance with all applicable laws, rules, & regulations. Contractor shall assume full responsibility for all such matters.
3. Contractor shall ensure that all work is done in a safe and workmanlike manner.
4. All work shall be completed within the time period specified in the contract.
5. All work shall be completed in accordance with the plans and specifications.
6. All work shall be completed in accordance with the approved construction schedule.
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49. MILEAGE OF SUBSURFACE WATERLINE(S):
50. MILEAGE OF SUBSURFACE WATERLINE(S):

NEWPORT RD - BIRD RD BENCHMARKS

<table>
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<tbody>
<tr>
<td>1</td>
<td>795.52</td>
<td>CAST IRON FLANGE BOLT ON HYDRANT @ NE CORNER OF NEWPORT AND BIRD RD</td>
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</table>

PARKING POSITION:

1. PARKING POSITION:
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CONTACT INFORMATION

PUBLIC UTILITIES OWNER CONTACT

PRIVATE UTILITIES OWNER CONTACT

WEST LIBERTY STREET BENCHMARKS

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NORTH MAIN STREET BENCHMARKS

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**NORTH MAIN STREET**
**PROPOSED TYPICAL SECTION**

<table>
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<tr>
<th>Description</th>
<th>HMA Mix</th>
<th>Type of Application</th>
<th>AL</th>
<th>AWI (Min.)</th>
<th>Binder Location/Notes</th>
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<tr>
<td>HMA PAVEMENT TOP LVSP</td>
<td>220 LB/SYD</td>
<td>220 (TOP)</td>
<td>PG 58-28</td>
<td>TOP COURSE</td>
<td></td>
</tr>
<tr>
<td>HMA PAVEMENT LEVELING LVSP</td>
<td>220 LB/SYD</td>
<td>2 - PG 58-28</td>
<td>LEVELING COURSE</td>
<td></td>
<td></td>
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<tr>
<td>HMA APPROACH TOP LVSP</td>
<td>220 LB/SYD</td>
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<td>PG 58-28</td>
<td>LEVELING COURSE</td>
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<tr>
<td>HAND PATCHING</td>
<td>0 - 440 LB/SYD</td>
<td>PG 58-28</td>
<td>HAND PATCHING</td>
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</tbody>
</table>

Asphalt Emulsion:
- SS-1h 0.05 - 0.15 GAL/SYD
- INCLUDE IN COST OF HMA ITEM
PLAN: NTS

Know what's below. Call before you dig.

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ANN ARBOR, MI 48107-8647
734-794-6410
www.a2gov.org

2021 MISC. UTILITIES PROJECT
LIBERTY STREET TYPICAL SECTIONS

LIBERTY STREET
EXISTING TYPICAL SECTION
STA. 44+00 TO STA. 44+00

LIBERTY STREET
PROPOSED TYPICAL SECTION
STA. 44+00 TO STA. 44+00
<table>
<thead>
<tr>
<th>HMA Application</th>
<th>Item</th>
<th>Rate (lb/sqd)</th>
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<tr>
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<tr>
<td>Asphalt Emulsion SS-1h</td>
<td></td>
<td>0.05 - 0.15 GAL/SQYD</td>
<td></td>
<td>Include in cost of HMA Item</td>
</tr>
</tbody>
</table>
Know what's below. Call before you dig.
ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO GENERAL NOTES OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF IS REDUCED.

CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

Providing a smooth, continuous, hard surface through the length of the APR.

PEDESTRIAN DETOUR USING OPPOSITE SIDE OF STREET

1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF STREET DETOUR OR DETOUR WITH TRAILBLAZING SIGNS

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN CROSSING SIGNS AT THE始めた OF THE CONSTRUCTION Site AND OTHER END OF THE CONSTRUCTION AREA.

PEDESTRIAN DETOUR TRAILBLAZING SIGNS SHALL BE USED IF THE PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHOULD BE DISPLAYED WHEN ANY WALKWAY REQUIREMENTS TO THE BORDERS OF THE ROAD TO THE PEDESTRIAN Access.

PEDESTRIAN ACCESS IS NON-COMPLIANT TO TPAR STANDARDS.

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**BYPASS ON ADJACENT AVAILABLE RIGHT OF WAY**

**BYPASS TYPE A**

- Provide a smooth, continuous, hard surface through the length of the APR.
- Compacted gravel, aggregate, or slag materials are not allowed. Provide a firm, stable, and slip-resistant temporary walkway surface to cover short segments of rough, soft, or uneven ground.

**SIDEWALK BYPASS USING PARKING OR SHOULDER ON LOW SPEED ROADWAY**

**BYPASS TYPE B**

- Temporary truncated domes, required if crossing a minor road or commercial driveway.

**SIDEWALK BYPASS USING SHOULDER OR PARKING LANE ON HIGH SPEED ROADWAY**

**BYPASS TYPE C**

- Typical sign message for a temporary pedestrian detour shall include information such as the duration of the walkway restrictions (beginning and/or end dates) and a project contact number for 24/7 questions or reporting hazards.

---

**GENRAL NOTES**

- When closing or relocating crosswalks or sidewalks, the contractor shall provide detectable temporary facilities and include accessibility features consistent with existing pedestrian facilities.

**SPECIFIC NOTES**

- Temporary curb ramps with detectable warnings.
- Temporary type A or bypass lane, recommended when the closed area is used as an intermittent traffic lane or bypass lane. Street traffic shall be protected for at least 50 feet in advance of the tri brock devices.
- An approved audible warning device or tactile warning shall be provided for temporary pedestrian devices.
- All temporary pedestrian devices shall be placed at no cost to the project.

**LEGEND**

- Existing pedestrian surface
- Work area
- Pedestrian channelization device
- Barrier
- Direction of traffic
- Traffic control device

**GENERAL NOTES**

- When closing or relocating crosswalks or sidewalks, the contractor shall provide detectable temporary facilities and include accessibility features consistent with existing pedestrian facilities.

- Early traffic control devices for pedestrian are shown. Other devices may be necessary to control vehicle traffic, please refer to the posted speed for guidance. Provide a smooth, continuous, hard surface through the length of the APR.

- Compacted gravel, aggregate, or slag materials are not allowed. Provide a firm, stable, and slip-resistant temporary walkway surface to cover short segments of rough, soft, or uneven ground.

- Post-mounted signs located adjacent to a sidewalk shall have a 7-foot minimum clearance from the bottom of the sign to the sidewalk surface. Other devices shall be placed at no cost to the project.

- When the engineer determines that the contractor's operations or placement of temporary devices has caused a situation where the visibility of a traffic control device is reduced enough to create a hazard, the traffic control devices shall be delineated with flags or other engineer-approved devices at no additional cost to the project.

- Minimize disruption to pedestrians to the maximum extent feasible by providing an APR in the following order of preference:
  1. Provide the APR on the same side of the street as the disrupted route.
  2. Where it is not feasible to provide a same side APR, provide it on the opposite side of the street.
  3. Where it is not feasible to provide an APR on the opposite side of the street, provide an APR detour with trailblazing signs as shown on the project plans.
CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.

PROTECTIVE EDGING WITH A 2.5" MIN. HEIGHT ABOVE THE RAMP SHALL BE PLACED HORIZONTALLY.
CURB RAMPS OR LANDING PLATFORMS SHALL BE ARTICULATED AT 60 DEGREES OR MORE FOR ANY SIDE APRON SLOPE STEEPER THAN A 1:3 PROTECTIONED EDGE SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 2" OR MORE.

DETECTABLE EDGING ANYTIME A HANDRAIL IS REQUIRED, AND ANYTIME THE PATH CHANGES DIRECTION, THIS WILL INCLUDE A TURN INTO THE CURB RAMP FROM THE PATH. DETECTABLE EDGING MUST BEGIN A MAXIMUM OF 2.5" ABOVE THE RAMP SURFACE, AND EXTEND AT LEAST 6" ABOVE THE RAMP SURFACE. CONTRASTING COLOR SHALL BE PLACED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).

CURB RAMPS AND LANDING WALLS SHALL BE NON-SLIP SURFACE.

CLEAR SPACE OF 48" x 48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

LEADING EDGES SHOULD BE 2" TO 4" WIDE EDGE MARKING.

CROSS SLOPE 2% MAX.

SHOWN WITH PROTECTIVE EDGE

PROTECTIVE EDGING 2.5" MIN. HEIGHT ABOVE RAMP SURFACE

PROSCLEAR SPACE

JOINT GAP TREATMENT

EDGE TREATMENT

DRAINAGE

CURB FACE

TEMPORARY CURB RAMP
PARALLEL TO CURB

TEMPORARY CURB RAMP
PERPENDICULAR TO CURB

SHOWN WITH SIDE APRON

PROTECTIVE EDGING 2.5" MIN. HEIGHT ABOVE RAMP SURFACE

PROSCLEAR SPACE

JOINT GAP TREATMENT

EDGE TREATMENT

DRAINAGE

CURB FACE

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734-794-6410
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2021 MISC. UTILITIES PROJECT
TPAR RAMPS
TEMPORARY PEDESTRIAN ACCESS

- 2% MAX CROSS SLOPE
- 4' MINIMUM
- 5' DESIRABLE
- TEMPORARY WALKWAY SURFACE
- 2" MAX
- 0.5" INCH MAXIMUM
- PEDESTRIAN CHANNELIZER USING A BARRIER
  (MINIMUM REQUIREMENTS)
- PEDESTRIAN CHANNELIZER
  (MINIMUM REQUIREMENTS)
- LEADING EDGE
- HANDRAILING EDGE
- DETECTABLE EDGE
- 2" MAX
- 32" MIN
- 200' MAX SPACING FROM LAST PASSING SPACE
- 200' MAX SPACING FROM SCHOOL CROSSING
- GENERAL NOTES
  - ALL DEVICES SHALL BE FREE OF SHARP OR ROUGH EDGES, AND FASTENERS (BOLTS) SHOULD BE ROUNDED TO PREVENT HARM TO HANDS, ARMS OR CLOTHING OF PEDESTRIANS.
  - ANY DEVICES USED TO CHANNELIZE PEDESTRIAN FLOW SHOULD INTERLOCK SUCH THAT GAPS DO NOT ALLOW PEDESTRIANS TO STRAY FROM THE INTENDED CHANNELIZED PATH.
  - PEDESTRIAN DEVICE SURFACES SHALL BE FIRM, STABLE, AND SLIP RESISTANT. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED.
  - LONGITUDINAL CHANNELIZING DEVICES FOR PEDESTRIANS SHALL BE 32 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

SPECIFIC NOTE: HANDRAILS OR OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4 INCHES INTO THE WALKWAY CLEAR SPACE WHEN LOCATED A MINIMUM OF 27 INCHES ABOVE THE WALKWAY SURFACE.

NARROW TEMPORARY PEDESTRIAN ACCESS ROUTE PASSING DETAIL

- 2" MAX
- 4' MIN
- 2" MAX
- 3" MIN
- SIDEWALK BARRICADE
- TYPICAL AUDIBLE MESSAGE DEVICE LOCATION WHEN USED
- GENERAL NOTES
  - ALL PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET CRASHWORTHY REQUIREMENTS APPLICABLE FOR THE BARRIERS' APPLICATION.
  - PEDESTRIAN DEVICES SHALL BE PLACED CONTINUOUSLY ALONG THE ENTIRE WIDTH OF THE WALKWAY SURFACE Barring Clues.

SIDEWALK BARRICADE

- WALKWAY SURFACE
- 2" MAX
- STRINGER
- TYPICAL AUDIBLE MESSAGE DEVICE LOCATION WHEN USED

GENERAL NOTES

- BARRICADES SHALL BE PLACED CONTINUOUSLY ALONG THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEARING CLUES.

SPECIFIC NOTE:  ANY TRIPPING HAZARD IN THE WALKWAY NEEDS A DETECTABLE EDGE. BALLAST SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE, ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXTEND INTO THE 48 INCH MINIMUM WALKWAY CLEAR SPACE AND SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.

- GENERAL NOTES
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Know what's below. Call before you dig.
Know what's below. Call before you dig.
Know what's below. Call before you dig.
Know what's below. Call before you dig.

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

2021 MISC. UTILITIES PROJECT
N MAIN ST TRAFFIC CONTROL - PH II
STA. 18+00 - 36+00

NOTE:
1. FINAL LEVEL OF PAVEMENT STATUS FOR UPRIGHT INSTALLATION WILL BE AS DIRECTED BY ENGINEER
2. UNDER PAVEMENT LINES AND PROTECTIVE SIGNS ALONG WORK ZONE TO IDENTIFY OPEN TRENCHES AS DIRECTED BY ENGINEER
3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION
4. OTHER COMPLIANCE ITEMS AS NEEDED OR AS DIRECTED BY ENGINEER
5. AVOID COMPLETING PAVEMENT Workpieces AS DIRECTED BY THE ENGINEER
6. CONSTRUCTION FUNCTIONAL MATERIALS, TRAFFIC CONTROL SYSTEMS AND CONSTRUCTION MILEAGE LIMITS TO BE PROVIDED BY THE ENGINEER.
Know what's below. Call before you dig.

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING
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

2021 MISC. UTILITIES PROJECT
N MAIN ST TRAFFIC CONTROL - PH II
STA. 36+00 - STA. 46+80

CONSTRUCTION TO OCCUR ON M-14 EXIT RAMP

1. FINAL SEWER OR PIPE LOCATION FOR UTILITY INSTALLATION WILL BE AS DIRECTED BY ENGINEER
2. UTILITY pipe LINES AND PROTECTIVE TRENCH WORK MUST.za
3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION
4. OTHER CONSTRUCTION WORK AS NEEDED OR AS DIRECTED BY ENGINEER
5. PROTECT SAFETY PIPE HOUSING AS DIRECTED BY THE ENGINEER
6. CONSTRUCTION TO OCCUR ON M-14 EXIT RAMP

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22 OF 60
Know what's below.
Call before you dig.

CAUTION
HAZARDOUS OR FLAMMABLE MATERIAL

CAUTION
HAZARDOUS OR FLAMMABLE MATERIAL
# Storm Sewer Structure Table

<table>
<thead>
<tr>
<th>Structure</th>
<th>Utility Station</th>
<th>invert Elevation</th>
<th>Top of Castig Elevation</th>
<th>Depth (Ft.)</th>
<th>Size</th>
<th>Application/Constrution</th>
<th>Slump</th>
</tr>
</thead>
<tbody>
<tr>
<td>R103</td>
<td>540B</td>
<td>84.00'</td>
<td>793.33'</td>
<td>795.00'</td>
<td>11.82</td>
<td>0'</td>
<td>Storm SM (Cover B)</td>
</tr>
<tr>
<td>R104</td>
<td>7405</td>
<td>84.00'</td>
<td>794.00'</td>
<td>795.71'</td>
<td>10.41</td>
<td>0'</td>
<td>Storm SM (Cover B)</td>
</tr>
</tbody>
</table>

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**Plan:** 1" = 30'  
**Profile:** 1" = 3'

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CAUTION  
HAZARDOUS OR FLAMMABLE MATERIAL
Know what's below. Call before you dig.
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Know what's below.

Call before you dig.
Know what’s below. Call before you dig.

SEE DETOUR PLAN FOR ADDITIONAL SIGNAGE

CONSTRUCTION AREA: 1" = 40'

1. FINAL SIZE OF TRAFFIC CONTROL FOR UTILITY INSTALLATION WILL BE AS INSTRUCTED BY ENGINEER.
2. UNDER NO CIRCUMSTANCES WILL PROPER HERE WELL ONCE A ROADWAY OPEN TRAFFIC AS INSTRUCTED BY ENGINEER.
3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION.
4. OVERTAKE CONSTRUCTION AREA AT MINIMUM OF 10 MILES PER HOUR.
5. OVERCOME PEDESTRIAN WALKWAYS AS INSTRUCTED BY THE ENGINEER.
6. CONSTRUCTION SHALL PLACE PURAL BARRIERS ALONG BORDERS OF THE WORK ZONE, AND THE SIGN OF CONSTRUCTION AS DEFINED IN SEC. 53 OF A2GOV TO ENSURE VEHICLE TO BE PROVIDED IN APPLICABLE.
Know what's below. Call before you dig.

SEE DETOUR PLAN FOR ADDITIONAL SIGNAGE

1. FINAL SIZE OF MATURED TRENCH FOR UTILITY INSTALLATION WILL BE AS SHOWN ON EASEMENT.
2. UNDER ELECTRICAL AND PROTECTIVE TRENCHING, WHICH IS SHOWN AS TIME TO EXIST IN EASEMENT.
3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION.
4. CROWN IN CONCRETE SWALE AS SHOWN OR AS DIRECTED BY ENGINEER.
5. PEDWAY CLOSING TO PEDESTRIANS AS DIRECTED BY THE ENGINEER.
6. CONSTRUCTION SHALL PLACE PRECAUTIONS, EXCAVATION MESSONE AND TEMPORARY PEDESTRIAN SWALE AS DIRECTED BY THE ENGINEER. USE OF EQUIMENT TO BE PROVIDED BY THE CONTRACTOR.
Know what's below. Call before you dig.
Know what's below. Call before you dig.
### Water Main Structure Table

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Station</th>
<th>FW (Depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V0</td>
<td>4+00</td>
<td>845</td>
</tr>
</tbody>
</table>

### Notes

- **CAUTION**: Hazardous or Flammable Material
- **CAUTION**: Critical Utility
- **CAUTION**: Critical Utility

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

---

**City of Ann Arbor - Public Services - Engineering**

**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**

**2021 Misc. Utilities Project**
**W Liberty St 8-in Water Main**
**STA. 4+00 - STA. 7+50**
CAUTION
CRITICAL UTILITY
HAZARDOUS
OR FLAMMABLE
MATERIAL
Plan: 1" = 20'  Profile: 1" = 4'

Know what's below. Call before you dig.

City of Ann Arbor - Public Services - Engineering
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

2021 Miscellaneous Utilities Project
Crest Ave 8-In Water Main

Caution - Hazardous or Flammable Material
Know what's below. Call before you dig.
Know what's below. Call before you dig.
Know what's below. Call before you dig.

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

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

2021 MISC. UTILITIES PROJECT
W LIBERTY ST PAVEMENT MARKINGS
STA. 12+00 - STA. 17+00