ADDENDUM No. 1
RFP No. 24-23
Barton/Bandemer Park Pedestrian Tunnel Project

Due: May 15, 2024 by 11:00 a.m. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. This Addendum includes seven (7) pages in addition to the sign in sheet (1 page), 29 pages that were updated in the RFP document, and the entire updated plan set (80 pages) for a total of 117 pages.

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

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

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

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

I. CORRECTIONS/ADDITIONS/DELETIONS

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

<table>
<thead>
<tr>
<th>Section/Page(s)</th>
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<td>As provided in RFP No. 24-23 Document: Proposal Due Date: May 8, 2024 at 11:00 a.m.</td>
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<td>As updated herein: Proposal Due Date: May 15, 2024 at 11:00 a.m.</td>
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*Comment: The Due Date and Time for responses to this RFP has been extended to May 15, 2024 at 11:00 a.m. (local time). Note that all other dates are unchanged.*

| Section III     | As provided in RFP No. 24-23 Document: Form, Section 1 – Schedule of Prices as Pages 15,16,17, 18 and 19. |

*Comment: Pay item quantities were changed for the following pay items:*
Embankment, CIP
Non Haz Contaminated Material Handling and Disposal
Sewer, PVC, 6 inch, Tr Det B
Clean Out
Underdrain, Fdn, 6 inch
Steel Sheet Piling, Permanent
Steel Sheet Piling, Temp, Left in Place, Special
Steel Sheet Piling, Temp, Special
Reinforcement Steel, Epoxy Coated
Modular Block Wall
Fence, Rustic Split Rail
Limestone Cap
Limestone Block
Split Field Stone
Post, Steel, 3 pound
Sign, Type IIIB
Cable, Equipment Ground Wire, 1/C#8
Cable, 600V, 1, 3/C#2
Cable, Grounding Wire, 1/C#12
Cable, 600V, 1, 3/C#12

Conduit, Schedule 40, 2 inch was removed
Hh, Round, 3 foot dia was removed
Conduit, Schedule 80, 1 ¼” was removed
Conduit, PVC, 3/4” was removed

Added a new pay item for Dr Structure, Tap, 6 inch.
Added a new pay item for Corrugated Steel Pipe, Galv, 6 inch
Added a new pay item for Sign, Type IIIA
Added new pay item for Sign, Type III, Rem
Added new pay item for Ground Mtd Sign Support, Rem
Added a new pay item for Conduit, DB, 1, 2 inch
Added a new pay item for Hh, Square
Added a new pay item for Conduit, Schedule 40, 1 inch

As updated herein:
Form, Section IV – Attachment A as Page C-4.

Comment: Updated signatory names for City representatives.

As updated herein:
Form, Section IV – Detailed Specifications as noted below.

Comment: Changes to detailed specifications ad noted below:
Progress Clause: Included approval by Amtrak for the actual start and stop times of the track outage.

Culvert, Precast Concrete Box, Modified: Changed the limits in which the culvert installed will be paid for in the Measurement and Payment section.
Dewatering System for Contaminated Groundwater: Updated language to provide the specific elevation for which point wells, sheeting, etc. cannot extend below.

Slotted Drain, Galvanized: Added a pay item for corrugated steel pipe between the sections of slotted drain within the tunnel.

Cleanout: Added details for an open grate cover to be used.

Decorative Panel, Furnish and Install: Updated Measurement and Payment section to include shipping costs in the Decorative Panel, Furn allowance.

Timber Bridge: Removed requirement for shop drawings.

Stone Masonry Façade: Updated to include requirement for a mock-up prior to ordering materials.

Section III Part E Updated quantity values.

Section IV Attachment A Update names for signature on Page C-4.

Section IV Detailed Specs Updated Progress Clause to include approval by Amtrak for outage start and stop times. Updated Culvert, Precast Concrete Box, Modified definition of pay limits. Added requirement for a mock-up of the stone work in the Stone Masonry Façade specification and noted this mock up is not paid for separately.

Plans Page 1 of 80 Replace plan sheet. Added requirement for securing City of Ann Arbor right-of-way permit for work near Huron River Drive. Added reference to additional railroad standards in the third General Note.

Plans Page 3 of 80 Replace plan sheet. Add clarification to end of last note in Utilities section. Added a note in the Railroad Notes section regarding requirement to dispose of excavated materials from railroad right-of-way as non-hazardous contaminated materials.

Plans Page 4 of 80 Replace plan sheet. Added notes for Restoration to reinforce the requirements for slope restoration on railroad right-of-way.

Plans Page 7 of 80 Replace plan sheet. Included line work for a proposed easement.

Plans Page 8 of 80 Replace plan sheet. Revised concrete jointing pattern.

Plans Page 9 of 80 Replace plan sheet. Included line work for a proposed easement. Called out light poles shown in plan view.

Plans Page 11 of 80 Replace plan sheet. Added railroad to view in bottom typical section.

Plans Page 13 of 80 Replace plan sheet. Added sign removal along Huron River Drive.

Plans Page 14 of 80 Replace plan sheet. Added proposed signage along pathway and Huron River Drive. Revised concrete jointing pattern.

Plans Page 15 of 80 Replace plan sheet. Updated grading plan to match revised pedestrian bridge elevation.
Plans Page 16 of 80
Replace plan sheet. Updated profile (slight raise of 2-inches at the timber pedestrian bridge).

Plans Page 17 of 80
Replace plan sheet. Updated miscellaneous quantities and turned off existing fencing in the restoration plan.

Plans Page 18 of 80
Replace plan sheet. Updated profile and turned off existing fencing in plan.

Plans Page 19 of 80
Replace plan sheet. Expanded coverage to include the entirety of the relocated stream. Added notes to remove existing concrete foundations to 1'-0" below finished grade where encountered in the grading. Updated miscellaneous quantities. Updated drainage layout and pipe sizes.

Plans Page 20 of 80
Replace plan sheet. Revised concrete jointing pattern.

Plans Page 21 of 80
Replace plan sheet. Removed sign details. All proposed signs are per the Michigan Standard Highway Signs Manual.

Plans Page 22 of 80
Replace plan sheet. Added work to construct a concrete curb along the path edge for a small portion of the path that parallels the park road (from the existing drainage structure to the north limits of pathway work).

Plans Page 23 of 80
Replace plan sheet. Updated miscellaneous quantity for Embankment, CIP

Plans Page 24 of 80
Replace plan sheet. Updated note in plan view to reflect change in pay item name for pipe between slotted drain sections.

Plans Page 26 of 80
Replace plan sheet. Modified the double bevel spacing in the modular wall cap from 8'-0" maximum to 6'-0" maximum. Updated miscellaneous quantities.

Plans Page 27 of 80
Added minimum section modulus for permanent sheet piling. Updated miscellaneous quantities.

Plans Page 28 of 80
Replace plan sheet. Added dimensions from track centerline to face of fence.

Plans Page 30 of 80
Replace plan sheet. Updated miscellaneous quantities.

Plans Page 31 of 80
Replace plan sheet. Updated miscellaneous quantities.

Plans Page 40 of 80
Replace plan sheet. Added a note (8) to direct Contractor to close down parking lot and close road during installation of conduit under the park road.

Plans Page 43 of 80
Replace plan sheet. Labeled light poles in plan view. Updated miscellaneous quantities.

Plans Page 44 of 80
Replace plan sheet. Labeled light poles in plan view and fencing performed by others in plan view.
Plains Page 45 of 80 Replace plan sheet. Updated profile upwards 2-inches at the timber pedestrian bridge.

Plains Page 47 of 80 Replace plan sheet. Removed grading details from Section A-A. Updated culvert width of walls to be 1'-0" in End Culvert Elevation and clarified where Liner, PVC, 30 Mil, Spec is paid for. Updated miscellaneous quantities.

Plains Page 48 of 80 Replace plan sheet. Added dimension of Fence, Protective, Special.

Plains Page 49 of 80 Replace plan sheet. Updated miscellaneous quantities.

Plains Page 52 of 80 Replace plan sheet. Updated size of panels inside culvert.

Plains Page 53 of 80 Replace plan sheet. Updated details for pedestrian bridge including member sizes and dimensions.

Plains Page 54 of 80 Replace plan sheet. Updated details for pedestrian bridge including member sizes and dimensions.

Plains Page 55 of 80 Replace plan sheet. Updated quantities and added size and depth to light pole base.

Plains Page 59 of 80 Replace plan sheet. Updated miscellaneous quantities and clarified location of electrical conduit along proposed split rail fencing.

II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the RFP. Respondents are directed to take note in its 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:
Considering the amount of work that needs to take place after the railroad crossing is installed and the seasonal limitations for concrete, HMA and masonry work, I believe the project completion date of 12.20.24 is extremely aggressive. Has any consideration been given to extending the completion date into the late spring / early summer of 2025?
Answer 1:
A second addendum will be provided which will move the construction to 2025. Please note that the liquidated damages for the track outage only apply once the outage has started and would not apply in the case the track outage itself is delayed.

Question 2:
Is there a sheeting section for the curved run of sheets “north” of the tunnel?
Answer 2:
The plan details have been updated to specify this minimum sheeting section.

Question 3:
Given the timeline, there is no guarantee of hitting the shutdown date. What is the backup plan if the date can’t be met? Is there an option to expedite ordering the box culvert? What is the contractor’s responsibility if the date isn’t met for a timeline out of their control?
Answer 3:
See answer to Question 1.
Question 4:
Will the owner consider revising the progress schedule to allow for a June of 2025 completion date for the completion of the path and associated architectural/ restoration items? If the owner will not revise the progress schedule, should the contractor cost in liquidated damages and winter heating costs into our proposal for the post tunnel/Amtrack work being delayed until the spring of 2025?
Answer 4:
See answer to Question 1.

Question 5:
For the artwork, could you clarify what the contractor's scope of work is and how they are compensated?
Answer 5:
Since the actual treatment and material is not yet known, we utilized an allowance dollar item that covers the material itself, actual artwork etching, and shipping costs. The LS item covers erecting the panels and all of the hardware. Please note, the dimensions for the panels were updated to be 4-feet wide by 5-feet tall.

Question 6:
Is there a recent bridge load rating for the vehicular/ped bridge over the Huron River? It’s the bridge off Barton Shore Drive.
Answer 6:
The recent load rating can be made available for viewing at the City’s offices. Note that the bridge is posted. The decking was not load rated, however, the bridge truss is posted and cannot take all legal loads. A note will be added to the plans to ensure the existing decking is not damaged during Contractor use (i.e. provide a plan for protecting the deck when equipment is to be used over the decking for approval by the City). Please note that the clear width between rails on the existing bridge is limited to 12-feet. Also, please note that the plans indicate there is access along the RR R/W provided for under certain restrictions by Amtrak.

Question 7:
Can you provide the City’s agreement with Amtrak?
Answer 7:
The draft agreement can be viewed at the City’s offices. This agreement is anticipated for approval at the May 6 City Council Meeting. The packet for this meeting can be viewed online and is public information. Link to the packet is below.

Question 8:
Will the clearing that has taken place be addressed in the Addendum #1? Any further clearing can't happen until after October 1.
Answer 8:
Trees have been removed for the footprint of this project. If trees need to be removed, they may need to be removed after the October 1 date and concerns should be addressed with Addendum 2.

Question 9:
Would the City consider moving the bid date back a week to May 15th?
Answer 9:
The deadline will be moved back one week to May 15th.
Question 10:
Please clarify call outs in timber bridge details.
Answer 10:
Timber bridge details have been updated in this addendum.

Question 11:
The SP for the timber bridge requires shop drawings, what is this intended for? The timber bridge will be constructed in place per the plan details.
Answer 11:
The SP will be modified to eliminate the need for shop drawings.

Question 12:
It appears that directional boring will be necessary from the power pole across the road. Is this included in the Conduit, Schedule 40, 2 inch item?
Answer 12:
The intent is to open cut the roadway and install the conduit. The plans have been updated to call out the HMA Surface, Rem and Hand Patching items in that area for this purpose. Be advised the Sch 40 conduit has changed to Sch 80. Also be advised that we have added an update to the maintaining traffic sheets to close the roadway down (no park access) for the installation of this culvert under the park roadway.

Question 13:
On Plan Sheet 59, it shows just the 13x24 pull boxes and doesn't show the 3’ round hand holes. Please verify.
Answer 13:
Hand holes were changed to square and are needed at the exterior/base of the tunnel to splice the cable and provide 2-conduit paths. One to the lights in the tunnel and the second to the surface mount light.

Question 14:
What are the dimensions of the light pole bases?
Answer 14:
These have been added to the plan details (4’ deep by 1’-8” dia.).

Question 15:
I assume the ¾” PVC is for the tunnel lighting? Is this schedule 40 or 80? Is there a detail for the mounting (does it need to be cast inside the culvert walls?), The qty seems high, please verify.
Answer 15:
Quantities have been updated. The conduit does not need to be cast in the culvert walls because it will be behind the decorative panels. However, we will want to have it buried underground until it gets into the tunnel to feed the light (coming up from the aggregate base inside the tunnel. Furthermore, the conduit may need to run along the backside of the wingwall and headwall and then run through a sleeve in the headwall to feed the exterior mounted light fixtures.

Question 16:
Is the pre-proposal conference sign-in sheet available?
Answer 16:
Yes it is provided in this addendum.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.
<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.T. MacKenzie Company</td>
<td>John Niemiec</td>
<td>744-761-5050</td>
<td><a href="mailto:jniemiec@mackenzieco.com">jniemiec@mackenzieco.com</a></td>
</tr>
<tr>
<td>Z Contractors</td>
<td>Kevin Anderson</td>
<td>586-625-8894</td>
<td><a href="mailto:kanstree@zcontractors.com">kanstree@zcontractors.com</a></td>
</tr>
<tr>
<td>Connelly Crane</td>
<td>Jeff Horn</td>
<td>734-637-3252</td>
<td><a href="mailto:jeff@connellycrane.com">jeff@connellycrane.com</a></td>
</tr>
<tr>
<td>Toebbe</td>
<td>Aaron Angle</td>
<td>248-408-9872</td>
<td><a href="mailto:aangle@toebbe-construction.com">aangle@toebbe-construction.com</a></td>
</tr>
<tr>
<td>Anglin Civil</td>
<td>Brad Greff</td>
<td>208-20-4845</td>
<td><a href="mailto:bids@anglincivil.com">bids@anglincivil.com</a></td>
</tr>
<tr>
<td>C.A. Hill</td>
<td>Jay Oester</td>
<td>319-217-4792</td>
<td><a href="mailto:jay@cahill.com">jay@cahill.com</a></td>
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<tr>
<td>C.A. Hill</td>
<td>Ben Edwards</td>
<td>810-358-0225</td>
<td><a href="mailto:bedwards@cahill.com">bedwards@cahill.com</a></td>
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<tr>
<td>Anlan Corporation</td>
<td>Josh Goldsworthy</td>
<td>616-758-187</td>
<td><a href="mailto:josh.goldsworthy@anlan.com">josh.goldsworthy@anlan.com</a></td>
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<tr>
<td>FH Paschen</td>
<td>Aric Atiyeh</td>
<td>918-255-3206</td>
<td><a href="mailto:aatiyeh@fhpaschen.com">aatiyeh@fhpaschen.com</a></td>
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PUBLIC IMPROVEMENT REQUEST FOR PROPOSAL

RFP# 24-23

Barton/Bandemer Park Pedestrian Tunnel Project

City of Ann Arbor
PARKS AND RECREATION SERVICES/COMMUNITY SERVICES AREA

Due Date: May 15, 2024 by 11:00 a.m. (local time)

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI  48104
D. PRE-PROPOSAL MEETING

A pre-proposal conference for this project will be held on Thursday April 23, 2024 at 10:00 a.m. (local time) at the Bandemer Park Parking Lot, 2001 Whitmore Lake Road, Ann Arbor, MI 48105.

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-proposal conference is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the proposal will be affirmed in an addendum.

E. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective bidder. An official authorized to bind the bidder to its provisions must sign the proposal. Each proposal must remain valid for at least one hundred and twenty (120) days from the due date of this RFP.

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

F. SELECTION CRITERIA

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

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

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

G. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before May 15, 2024 11:00 a.m. (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile will not be considered or accepted.
appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

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

P. SCHEDULE

The following is the schedule for this RFP process.

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<th>Activity/Event</th>
<th>Anticipated Date</th>
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<tr>
<td>Pre-Proposal Conference</td>
<td>April 23, 2024, 10:00 a.m. (Local Time)</td>
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<tr>
<td>Written Question Deadline</td>
<td>April 26, 2024, 2:00 p.m. (Local Time)</td>
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<tr>
<td>Addenda Published (if needed)</td>
<td>Week of April 29, 2024</td>
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<tr>
<td>Proposal Due Date</td>
<td>May 15, 2024, 11:00 a.m. (Local Time)</td>
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<td>Selection/Negotiations</td>
<td>May/June 2024</td>
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<td>Expected City Council Authorizations</td>
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The above schedule is for information purposes only and is subject to change at the City’s discretion.

Q. IRS FORM W-9

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

R. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all bidders.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more contractors or service providers to perform services.
### E. Schedule of Pricing/Cost – 20 Points

Company:  

#### Unit Price Bid –

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<td>Platanus occidentalis, 3 inch</td>
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<td>Tilia americana, 3 inch</td>
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<td>Cornus florida, 2 1/2 inch</td>
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<td>Corrugated Steel Pipe, Galv, 6 inch</td>
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**ESTIMATED TOTAL** $________________________
ARTICLE X - Entire Agreement

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

ARTICLE XI – Electronic Transactions

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

FOR CONTRACTOR

By___________________________

Its:___________________________

FOR THE CITY OF ANN ARBOR

By___________________________

Christopher Taylor, Mayor

By___________________________

Jacqueline Beaudry, City Clerk

Approved as to substance

By___________________________

Milton Dohoney, Jr.
City Administrator

By___________________________

Derek Delacourt
Community Services Area Administrator

Approved as to form and content

____________________________________
Atleen Kaur, City Attorney
The Engineer anticipates that construction can begin no earlier than ten (10) calendar days after award or as directed by the Engineer.

In no case can any work be commenced prior to receipt of formal notice of award by the Department.

Prepare and submit a complete, detailed, signed Progress Schedule to the Engineer.

The Progress Schedule shall include, at minimum, the controlling work items for the completion of the project, as well as the planned dates or work days that these work items will be controlling operations. All contract dates including open to traffic, project completion, interim completion and any other controlling dates in the Contract, must be included in the Progress Schedule. If the bidding Proposal specifies other controlling dates, these shall also be included in the Progress Schedule.

The project shall be completed in its entirety including final site restoration and clean-up on or before December 20th, 2024 excluding the acceptance of slope restoration, tree plantings, and watering & cultivating. Slope restoration and watering & cultivating requirements must be met prior to final acceptance of the project. A 36-hour track outage has been scheduled on, or about, October 9th, 2024 for the purposes of constructing the project under the railroad tracks. If inclement weather occurs during the original track outage date, a back-up track outage date scheduled approximately 2 weeks after the originally scheduled outage must be coordinated with the Engineer. All work required for preparation for this outage must be done prior to October 9th, 2024. The actual outage start and stop times will be provided by the Engineer and approved by Amtrak. The Contractor will be given a 30-hour uninterrupted time for which to construct the work required during the track outage.

The Contractor shall include an hour-by-hour schedule for the work planned during the track outage to be approved by the Engineer. The hour-by-hour schedule shall include the Contractor coordinating with Amtrak to show durations for the work tasks Amtrak will be responsible for during the track outage. The hour-by-hour schedule shall indicate an emergency stop work plan indicating the point at which the Contractor will no longer be able to stop and return the site to a condition ready for Amtrak to perform their work in reopening to rail traffic within the planned outage timeframe.

Unless specific pay items are provided in the contract, any extra costs incurred by the Contractor due to cold-weather protection and winter grading will not be paid for separately, but will be included in the payment of other pay items in the contract.

After award and prior to start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the date, time, and place for the preconstruction
meeting. The meeting will be conducted after project award and may be rescheduled if there are delays in the award of the project.

The named subcontractor(s) for Designated and/or Specialty Items, as shown in the Proposal, should attend the preconstruction meeting if such items materially affect the work schedule.

For compliance with threatened and endangered bats, tree clearing must be completed between October 1 and March 31.

Failure by the Contractor to meet interim completion, open to traffic, and/or final completion dates will result in the assessment of liquidated damages in accordance with subsections 108.10.C.1 and 108.10.C.2 of the Standard Specifications for Construction.

Failure by the Contractor to reopen the rail line to rail traffic within the track outage timeframe defined above will result in the assessment of liquidated damages in accordance with the Special Provision for Liquidated Damages for Other Department Costs.
a. **Description.** This work consists of designing, load rating, manufacturing, and installing precast concrete box culvert segments with galvanized metal tie rods, plate washers, lock washers, and acceptable soil and watertight sealant as filler to access holes on the final three section/2 joints of box culverts as shown on the plans, this specification, and according to the current (as of bid letting date for this project) *American Railway Engineering and Maintenance-of-Way Association (AREMA)* specifications, Cooper E80 loading and section 406 of the Standard Specification for Construction.

Do not manufacture the precast concrete elements on the jobsite. All precast elements must be manufactured at a commercial precast plant listed in subsection 909.04 of the Approved Manufacturers section of MDOTs Materials Source Guide.

b. **Materials.** Provide materials in accordance with subsection 406.02 of the Standard Specifications for Construction.

Provide the following materials to construct the joint tie assemblies:

1. One inch diameter threaded rods meeting the requirements of ASTM F1554, Grade 36.
2. Two inch by two inch by 5/16 inch plate washers meeting the requirements of ASTM A36/A36M.
3. Flat circular washers meeting the requirements of ASTM F436/F436M to be placed over the plate washer and under the lock washer.
4. Lock washers meeting the requirements of ANSI B18.21.1.
5. Heavy hex nuts meeting the requirements of ASMT A563, Grade A.

Ensure all hardware is galvanized in accordance with ASTM A123/A123M or ASTM A153/A153M, as applicable.

Provide PVC liner for the culvert joints that is 30 mils thick. Use resins to manufacture the PVC liner that are 100 percent first quality virgin PVC. Ensure the PVC liner is resistant to UV degradation, construction damage and all forms of biological and chemical degradation normally encountered in highway construction applications. Satisfy the physical properties contained in Table 1.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness Tolerance</td>
<td>ASTM D1593</td>
<td>+/- 5 percent</td>
</tr>
<tr>
<td>100 Percent Modulus</td>
<td>ASTM D882</td>
<td>1000 psi (minimum)</td>
</tr>
<tr>
<td>Elongation @ Break</td>
<td>ASTM D882</td>
<td>300 percent (minimum)</td>
</tr>
<tr>
<td>Dimensional Stability</td>
<td>ASTM D1204</td>
<td>5 percent change (maximum)</td>
</tr>
<tr>
<td></td>
<td>(212 degrees F, 15 minutes)</td>
<td></td>
</tr>
</tbody>
</table>
Provide test data certification from the manufacturer with each material shipment, which includes a certified report of quality control test results obtained from the lot(s) of material in the shipment. Label each unit of material to provide product identification sufficient for field identification and correlation to certified test results. Certify the specified physical properties as minimum average roll values (MARV).

c. Construction. Design and load rate precast box culverts in accordance with current AREMA specifications and Cooper E80 loading and provide calculations to the Engineer for review that are sealed by a Professional Engineer in the State of Michigan. All other construction methods must be in accordance with subsection 406.03 of the Standard Specifications for Construction.

Install and maintain joint tie assemblies and hole filler during construction and backfilling activities. Use caution when placing and compacting backfill materials adjacent to the assemblies. Ensure damage to the joint tie assemblies or box culvert around the assemblies caused by the Contractor’s operation is repaired or replaced at the Contractor’s expense.

Joint tie assemblies are intended to hold the box culvert sections in place throughout the design life and must not be used to pull the sections together during construction.

Apply tie rod hole filler in accordance with subsection 713.03.F of the Standard Specifications for Construction.

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culv, Precast Conc Box, __ foot by __ foot, Modified</td>
<td>Foot</td>
</tr>
</tbody>
</table>

Culv, Precast Conc Box, __ foot by __ foot, Modified, will be measured along the culvert centerline from reference point to reference point as detailed on the plans. The unit price for Culv, Precast Conc Box, __ foot by __ foot, Modified includes all labor, equipment and materials necessary to design, manufacture, load rate and install all precast elements including tie rod assemblies, wingwalls, headwalls, and aprons. Payment includes, PVC liner, cold-applied culvert joint sealer, treated plywood at top joints, closed-cell rubber extrusion type gaskets, 36-inch wide geotextile filter fabric, inserts and leveling shims.
a. Description. This work consists of all labor, equipment and materials required to lower the groundwater table to facilitate construction in the area of the excavation for the proposed culverts and pathway construction in the event the groundwater is found to be contaminated.

If the groundwater removed during the dewatering process is contaminated, it cannot be discharged directly to the ground surface or a surface water body. Dispose of groundwater removed in one of three ways:

1. To a sanitary sewer system, if permission is granted by the system owner (note that there is a permit fee and a per 100 cubic feet charge for the local sewer system;

2. To a surface water body under a National Pollutant Discharge Elimination System (NPDES) permit, or

3. Collected and hauled to an acceptable treatment facility.

The operation, monitoring, sampling and analysis of any treatment system used for discharge to a sanitary sewer or surface water body, or hauling to a treatment facility as needed is included in this work.

Groundwater throughout the project site may be contaminated, however, a sample was taken in 2022 just south/west of the railroad tracks near the proposed box culvert. This sample was tested which indicated it was not contaminated with dioxane, however, additional tests were not run.

Handle contaminated water in accordance with the Michigan Occupational Safety and Health Administration (MIOSHA) Standard for Hazardous Waste Operations and Emergency Response (HAZWOPER). Applicable workers must work under the direction of an on-site supervisor and a site-specific safety and health plan and must be trained and protected pursuant to the HAZWOPER Standard.

Provide to the Department, at the pre-construction meeting, documentation verifying the qualifications of Contractor personnel who will be performing the sampling and handling work. Provide a Safety and Health Plan as required by the MIOSHA standard.

Provide training for such sampling and handling for up to two Department designated employees as described in the MIOSHA standard, unless not required by the Engineer. If required, employees selected by the Engineer, must receive the 40 hour HAZWOPER training.

Provide personal protective equipment (as required by MIOSHA) for two Department designated employees with the exception of air purifying respirators. Department employees will provide their own fit tested air purifying respirators, if necessary.
Dewatering and disposal of groundwater that is not contaminated is considered included in other items of work.

b. **Well Points and Deep Wells.** Do not damage property or structures or interfere with the rights of the public, owners of private property, pedestrians, vehicular traffic and the work of other contractors should groundwater control be performed by deep well and/or well point pumping systems. Provide properly designed filters for any pumping methods used to ensure that adjacent soil will not be pumped with the water, thus creating voids underground around the face of the excavation or under existing structures. Submit filter design for review and approval by the Engineer before placement.

Perform the dewatering operation in a proper and predetermined sequence with the excavation operation such that the perimeter and face of the excavation is stable. Dewatering well diameter, pumping rate and well spacing must provide adequate drawdown of the water level. Locate wells to intercept groundwater that otherwise would enter the excavation and interfere with the work. Install observation wells at key locations for observation of groundwater levels during the excavation. The anticipated observation wells are, but not limited to, one per each 200 foot of trenching required for the dewatering system. Submit a plan for locations and monitoring frequency of the observation wells to the Engineer a minimum of 7 days in advance of placement of the dewatering system.

Discharge deep wells and/or well points in the area of contamination into header or collection pipes prior to entering the treatment system.

c. **Treatment System.** Filters or settling devices may be required before treatment to ensure that neither the treatment and sanitary sewer systems or surface waters are adversely affected by construction debris or increased sediment load.

Contaminated water must be treated to reduce contaminants to levels acceptable to the sanitary sewer system owner or NPDES permit. Base the treatment system on the contaminant to be treated, upon concentrations of contaminants found in the groundwater, the flow required to adequately dewater the trench as specified above, and an effluent concentration that meets the requirements of the sanitary sewer system owner or the NPDES permit. Submit the proposed system to the Engineer for approval prior to starting the work.

d. **Sanitary Sewer or Surface Water Discharge.** Monitor the volume of treated water discharged to the sanitary sewer system or as surface water discharge by using a totalizing turbine type flow meter. Place the flow meter inline on the treatment system effluent line. Design the flow meter for high flow applications and it must have a flow totalizing register that is adequately sealed to eliminate fogging and condensation. Submit the type of meter proposed to be used to the Engineer for review and approval prior to placement.

Supply a copy of the written authorization from the wastewater treatment plant authority to the Engineer prior to discharging any water to the sanitary sewer system.

Secure a NPDES permit from the Environment, Great Lakes, and Energy (EGLE) prior to any discharge to a surface water body.

Monitor and document daily the volume of flow being discharged to the sanitary sewer or the surface water by reading the register on the flow meter. Provide this information to the Engineer daily or as otherwise approved.
e. **Hazardous/Nonhazardous Material Handling.** Load and transport all hazardous and nonhazardous waste using properly trained personnel and placarded vehicles having a hazardous or liquid industrial waste manifest, as required. All manifests are to be signed by the Engineer or their representative. The terms hazardous and nonhazardous, as used in this document, are defined in 1994 PA 451, Parts 111 and 121, of the Natural Resources and Environmental Protection Act.

f. **Construction.** Determine the methods and materials required to accomplish this work, subject to approval by the Engineer before initiation or installation of the dewatering system.

Dewatering System for Contaminated Groundwater must be independent of other dewatering operations by a separate installation. Use the system for as short of time as necessary. Take all appropriate precautions to prevent exacerbation of contamination.

The Engineer may order corrective actions to the dewatering or treatment system at any time due to deficiencies in the system at no additional cost to the Department.

Artesian conditions exist in the area. Do not install wells deeper than elevation 760.00.

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewatering System for Contaminated Groundwater, Site</td>
<td>Dollar</td>
</tr>
</tbody>
</table>

**Dewatering System for Contaminated Groundwater, Site** includes all labor, equipment, materials, wells, piping, supplies, power, training, permit fees, filters, and fuel necessary for the installation, operation, maintenance, removal and the disposal of all surplus materials as described herein. This pay item includes the cost over and above the costs for Dewatering System, Excavation for treatment of all water pumped from below ground to facilitate underground construction if the water is found to be contaminated.

Disposal of contaminated soil or sediment excavated or displaced during the installation of this system, will be included in the pay item of **Non-hazardous Contaminated Material Handling and Disposal (LM).**
a. Description. This work consists of furnishing and installing a 6 inch diameter galvanized slotted drain and 6 inch diameter corrugated galvanized steel pipe connecting the discontinuous slotted drain sections including all necessary hardware at the location(s) shown on the plans. Complete this work in accordance with section 402 of the Standard Specifications for Construction, the details shown on the plans and this special provision.

b. Materials. Provide slotted drain fabricated from galvanized corrugated steel pipe. The materials must meet the applicable requirements specified in the following subsection and section of the Standard Specifications for Construction:

- Corrugated Steel Pipe and Pipe Fittings ................................................................. 909.05
  (6 inch dia., 16 gauge, galvanized, per AASHTO M 36)
- Concrete ...................................................................................................................... 601

Provide all associated items, such as steel grates, spacer plates, bolts, nuts, and washers as recommended by the manufacturer of the slotted drain and as approved by the Engineer and galvanized in accordance with AASHTO M 232.

The slotted opening must be 1¾ inches wide and a minimum 2-1/2 inches deep with a trapezoidal grate. The finish surface grating must be ADA compliant. The trapezoidal grate must have reinforcing spacer plates a minimum of 3/16 inch thick spaced 6 inches on center. The spacer plates must be slanted to direct flow toward the drainage structure.

All slotted drain is subject to visual inspection prior to acceptance and must conform to the requirements in the proposal.

c. Construction. Install the slotted drain to the line and grade shown on the plans or as directed by the Engineer. The slotted drain must be completely encased in concrete and poured monolithically as shown on the plans.

Prior to placing concrete and backfilling operations, the upgrade end of the slotted drain must be plugged with a metal cap. The slots (grate assembly) must be covered during encasement operations to prevent infiltration of concrete and other foreign material into the pipe.

Prior to placing the concrete, the slotted drain pipe must be secured in the proposed line and grade to prevent shifting or floating during the encasement stage of construction.

If positive flow or the final grade of the slotted drain is not maintained during the encasement stage of construction, the drain must be removed and replaced at the Contractor’s expense.
d. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slotted Drain, Galv, 6 inch</td>
<td>Foot</td>
</tr>
<tr>
<td>Corrugated Steel Pipe, Galv, 6 inch</td>
<td>Foot</td>
</tr>
</tbody>
</table>

**Slotted Drain, Galv, 6 inch** will be measured in place by length in feet for the limits of the concrete encasement. Payment includes excavation, drainage structure taps, fittings, concrete encasement, and all necessary hardware, including metal caps, elbows, and the length of galvanized pipe required for the connection to drainage structures.

**Corrugated Steel Pipe, Galv, 6 inch** will be measured in place by length in feet used to connect the sections of Slotted Drain, Galv, 6 inch within the box culvert. Payment includes all connections between the slotted drain.
a. **Description.** This work consists of providing all labor, equipment, and materials for furnishing and installing clean out structures at the locations and elevations shown on the plans.

b. **Materials.** The materials must meet the applicable requirements specified in Section 909 of the Standard Specifications for Construction. The clean out diameter shall be 6 inches, length varies per plans. The clean out structure cover shall be a drop in grate with open slots generally in conformance with the details below.

c. **Construction.** Install the clean out structures at the locations and elevations shown on the plans or as directed by the Engineer in accordance with Section 403 of the Standard Specifications for Construction.

Prior to backfilling operations, the covers shall be placed on top of the clean out structures to prevent backfill material from entering the drainage system.

The clean out structures are to be installed simultaneously with the pipes they are connected to. If positive flow is not maintained during the backfilling stage of construction, the drainage system must be removed and replaced at the Contractor’s expense.

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

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Out</td>
<td>Each</td>
</tr>
</tbody>
</table>

**Clean Out** will be paid for each clean out installed as shown on the plans.
a. **Description.** This work consists of furnishing decorative panels including all anchors, fasteners, equipment and labor to install decorative panels inside the box culvert. This work also includes coordinating with an artist for specific hole pattern and etching on the individual panels.

b. **Materials.**


2. Decorative Panels. Furnish materials per subsections 906.04 and 906.08 of the Standard Specifications for Construction. Use galvanized 11 gauge steel. Coat the panels in accordance with Section 707 of the Standard Specifications for Construction. Color to be determined by Owner. Provide flat panels with finished end pattern and perforations as directed by the Owner (pattern and hole sizing to be determined by the Owner). Example images of intent for these panels are included in this Special Provision.

3. Adhesive Anchors. Use adhesive anchors from MDOT's Qualified Products List.


c. **Submittals.** Prepare complete working drawings of connection supports and fasteners to support the panels. Coordinate with the Owner regarding hole pattern, sizing, and finish. Do not begin working drawings until the panels are supplied to verify connection details.

Coordinate adhesive anchor holes within the box culvert with the box culvert manufacturer to avoid conflict with steel reinforcement. Confirm rebar locations in culvert prior to fabricating connection supports. Use a pachometer to mark reinforcement in culvert if other identifying methods are not used.

Show proposed curb, lighting conduit, and fixtures on the working drawings to ensure no conflicts. Ensure there is adequate room between the culvert wall and the panels for the proposed lighting fixtures and conduit. Ensure connection supports do not conflict with proposed lighting conduit or fixtures.

Connection supports must be concealed behind the decorative panel with only visibility being through designed perforations in the panels.

d. **Construction.** Take field measurements within the completed box culvert installed in the field to verify location of connection supports and layout of decorative panels.

Locate rebar within the box culvert concrete using a pachometer prior to drilling holes for
adhesive anchors connection supports. Do not cut rebar during drilling.

Coordinate connection supports and panel installation with the proposed lighting conduit and fixtures.

Adjust the connections as necessary to provide a level and plumb decorative panel. Readjust for any variation out of level greater than \( \frac{1}{4} \)-inch between adjoining panels. Readjust for any variation out of plumb greater than \( \frac{1}{8} \)-inch between adjoining panels.

e. **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>Decorative Panel, Install</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Decorative Panel, Furn</td>
<td>Dollar</td>
</tr>
</tbody>
</table>

**Decorative Panel, Install** includes all labor, materials and equipment to install the decorative panels as shown on the plans, including the shop drawings and layout of the panels and installation components. **Decorative Panel, Furn** will include the panels, aesthetic treatment applied to them, shipping, and coordinating with the Owner’s designer/artist. Art work design will be provided by the owner to the Contractor’s fabricator for production.
a. **Description.** This work consists of furnishing materials for, and constructing a timber bridge in accordance with Sections 709, 908, and 912 of the Standard Specifications for Construction, the project plans and this special provision.

b. **Materials.**

1. **Wood.** Provide wood members that are Coast Region Douglas Fir or Southern Yellow Pine species. Provide commercial grade lumber for beams, joists, blocking and deck panels that are similar to 2400f-1.6E(MSR). For all other members, provide lumber similar to 1200f-1.2E(MSR). All lumber sizes are nominal. Provide lumber that is conditioned and pressure-treated in accordance with the requirements of AWPA C2 with the preservative chemical used meeting applicable EPA requirements. The use of waterborne chemicals will not be allowed. Handrails and posts must be conditioned and pressure-treated with a clean preservative such as pentachlorophenol.

Field cutting and drilling of wood members will not be allowed unless all cuts and field-drilled holes are brush treated with a 5% pentachlorophenol solution or other approved field-treatment. Creosote solutions will not be approved for field-treatment.

All wood members must have a smooth surface finish.

Manufacturer must submit a certificate attesting to compliance with preservative specifications.

2. **Hardware.** Provide hardware that is hot-dip galvanized and conforms to section 908.

Provide bolts, nuts, and washers used for assembly that conform to the requirements of ASTM A 325 and are hot-dip galvanized in accordance with ASTM A 153 or are stainless steel.

Provide steel plate brackets in accordance with ASTM A36 steel with hot-dip galvanized coating conforming to the requirements of ASTM A 153.

Provide nails that are galvanized 60d (6") spiral shank.

Provide all hardware and accessories required to properly and completely execute the carpentry for this project, including, but not limited to: screws, bolts, nuts, washers, straps, and similar items, whether specifically mentioned herein or not.

c. **Construction.** Construction must conform to sections 709 and 912 of the Standard Specifications for Construction except as described herein.
Furnish all lumber and install making sure all carpentry work is plumb, level and true to line and grade, and meets standard industry practices. All railings and caps must be sanded smooth and have rounded edges. Ensure all exposed edges are free from splinters and that sharp edges are sanded smooth. Pre drill toe nailed and lumber ends to prevent splitting. Nails must not protrude through the backside of any member.

Timber bridge is to be built at the location shown on the plans.

The approaches and bridge surface must meet all American with Disabilities Act criteria.

The low chord of the bridge must not be below that shown on the plans.

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

<table>
<thead>
<tr>
<th>Contract Item (Pay Item)</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber Bridge</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

Timber Bridge includes all labor, equipment and materials for furnishing and installing the timber bridge, including all wood members, posts, railing, hardware and fasteners, required to perform the completed work herein as described and shown on the contract documents. Miscellaneous metals and hardware will not be paid for separately, but will be included in the payment for Timber Bridge.

Substructure concrete, reinforcement steel, excavation and backfill will be paid separately.
CITY OF ANN ARBOR

SPECIAL PROVISION
FOR
STONE MASONRY FACADE

BBT:CED 1 of 6 3/19/24

a. Description. This work consists of furnishing all materials, equipment and labor to furnish and install a stone façade, caps, and signs as shown on the plans and as specified herein.

b. Materials.

1. Split Field Stone. Provide split field stone products below from the following manufacturer or an approved equal:
   a. Thin veneer split field stone from the Boulder Collection
   b. Supplier: Halquist Stone
      i. www.halquiststone.com
      ii. (262) 246-9000

2. Limestone. Provide limestone products below from the following manufacturer or an approved equal for the block veneer, wall caps, and decorative signs.
   a. Thin veneer Indiana “Bedford” Buff from the Cut Stone Collection
   b. Supplier: Halquist Stone
      i. www.halquiststone.com
      ii. (262) 246-9000

3. Cement Masonry Units (CMU’s). Provide 6-inch x 8-inch x 16-inch normal weight hollow concrete masonry block units in accordance with ASTM C 90. Store CMS’s on elevated platforms in a dry location. If not in an enclosed location, cover tops and sides of stacks with securely tied waterproof sheeting. Provide units with a minimum compressive strength of 2000 psi.

   a. Cement. Provide masonry cement material meeting ASTM C91/C91M. Provide mortar cement material meeting ASTM C1329/C1329M.
   b. Aggregate. Provide aggregate meeting ASTM C144. Use washed aggregate consisting of natural sand or crushed stone for mortar that is exposed to view. Provided aggregate for grout meeting ASTM C404.
   c. Mortar. Provide mortar consisting of Portland cement meeting ASTM C150, Type I, or Federal Specification SS-C-1292, Type I. Masonry cements must be manufacturer prepared or site prepared to meet or exceed the requirements of ASTM C-270. Provide lime meeting ASTM C207, Type S or ASTM C5 (quicklime). Provide mortar sand meeting ASTM C144, except that for joints ¼-inch or less in thickness, 100% must pass a No. 16 sieve. Provide clean, potable water free from deleterious amounts of acids, alkalis or organic materials.
   d. Do not use calcium chloride in mortar or grout.
   e. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
   f. Water. Use potable water.
   g. Grout. Provide grout in accordance with ASTM C-476 with aggregates in
accordance with ASTM C-404. Mix grout with 1 part Portland cement by volume, 0 to 1/10 part lime or lime putty by volume, fine aggregate (measured in damp, loose condition) 2 ¼ to 3 times the sum of volumes of cementitious materials, course aggregate (measured in a damp, loose condition) 1 to 2 times the sum of volumes of cementitious materials, potable water sufficient to obtain 8 to 10 inch slump.

h. Store masonry cement, Portland cements, and lime on wooden pallets or other material that will not collect condensation and off the ground in a dry condition. Keep sand clean.

i. Machine mix mortar materials in a batch, drum-type mixer for not less than 5 minutes. Use of a continuous mortar mixer is acceptable. Measure quantities by the box and do not use shovel measurements. Adjust mix due to climate conditions for best workability. Do not use anti-freeze materials.

j. Provide masonry cement according to the manufacturer's recommendations. Field prepared mortar must be proportioned within the limits, by volume, provided below:

i. Type M; 1 part Portland cement, ¼ part hydrated lime, not less than 2 ¼ and not more than 3 times the sum of the volumes of cement and lime used.

ii. Type S; 1 part Portland cement, ½ part hydrated lime, not less than 2 ¼ and not more than 3 times the sum of the volumes of cement and lime used.

iii. Type N; 1 part Portland cement, 1 part hydrated lime, not less than 2 ¼ and not more than 3 times the sum of the volumes of cement and lime used.

iv. Non-Staining; 1 part Portland cement, 1 part hydrated lime, 6 parts sand.

k. Prehydrate all mortars used for tuck pointing. Thoroughly mix all ingredients except water; then mix again, adding only enough water to produce a damp workable mix which will retain its form when pressed into a ball. After 1 to 2 hours, add sufficient water to bring it to the proper consistency; that is, somewhat drier than conventional masonry mortars.

l. Retemper mortars that have stiffened because of evaporation of water from the mortar as frequently as needed to restore the required consistency. Use mortars and place in final position within 2 ½ hours after initial mixing.

m. Use the same brands of cementitious materials and source of supply of sand throughout the entire project.

5. Masonry Joint Reinforcement. Install entire length of longitudinal side rods with a minimum cover of 5/8 inch on exterior side of walls and ½ inch elsewhere. Lap reinforcement a minimum of 6 inches. Cut and bend reinforcing units as directed by the manufacturer for continuity at corners, returns, offsets, and other special conditions.


7. Stone Trim Anchors. Fabricate anchors form stainless steel, ASTM A240/A240M or ASTM A666 Type 304. Use annealed stainless steel bolts, nuts, and washers; ASTM F593 for bolts and ASTM F594 for nuts, Alloy Group 1. Use chemical anchors, torque controlled expansion anchors, or undercut anchors made from stainless steel components complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 for bolts.
and nuts, ASTM 666 or ASTM A276, Type 304 or Type 316, for post-installed anchors.

8. Stone Dowels. Fabricate dowels from stainless steel, ASTM A276, Type 304.


10. Metal Flashing. Provide metal flashing complying with SMACNA’s “Architectural Sheet Metal Manual”. Use Stainless Steel ASTM A240/A240M or ASTM A666, Type 304 that is 0.016 inches thick. Fabricate continuous flashings in sections 8-feet long minimum, but not exceeding 12-feet. Provide splice plates at joints of formed, smooth metal flashing. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing. Fabricate metal drip edges from stainless steel that extend at least 3-inches into the wall and ½-inch out from the wall, with outer edge bend down 30 degrees and hemmed. Soder metal items at corners.

11. Flexible Flashing. Use rubberized asphalt consisting of a pliable, adhesive rubberized asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.030-inches. Use a manufacturer from one of the following, or approved equal:
   a. Carlisle Coatings & Waterproofing Inc.
   b. Heckmann Building Products, Inc.
   c. Hohmann & Barnard, Inc.
   d. W.R. Meadows, Inc.
   e. Williams Products, Inc.
   f. Wire-Bond.

12. Butyl Rubber Flashing. Use composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.030 inch. Use a manufacturer from one of the following, or approved equal:
   b. GCP Applied Technologies Inc.
   c. Protecto Wrap Company.
   d. Raven Industries, Inc.
   e. Wire-Bond.

13. EPDM Flashing. Use a sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 0.040 inch thick. Use a manufacturer from one of the following, or approved equal.
   a. Carlisle Coatings & Waterproofing Inc.
   b. Firestone Specialty Products.
   c. Heckmann Building Products, Inc.
   d. Hohmann & Barnard, Inc.
   e. Wire-Bond.

c. Submittals. Prepare complete working drawings of all masonry details including split field stone, stone signage, limestone blocks and caps, CMU’s, lintels, joint reinforcement, anchors, ties, and flashing. Indicate location and details for lighting conduit and fixtures.

Coordinate adhesive anchor holes in lintel plates with the box culvert manufacturer to avoid conflict with steel reinforcement. Confirm rebar locations in culvert prior to fabricating lintel plates. Use a pachometer to mark reinforcement in culvert if other identifying methods are not used.

d. Construction. Take field measurements as necessary to verify or supplement, or both, dimensions indicated in this special provision and on the contract plans.
Construction a 3-foot by 3-foot mock-up of the split field stone with a limestone cap at a location agreeable to the Engineer and the Contractor for review and approval by the Engineer prior ordering materials for full scale construction.

Clean the exposed surfaces of partially set or totally set fresh masonry and wet it lightly so as to obtain the best possible bond with the new work. Remove all loose stone and mortar.

Remove laitance, loose aggregate and other materials that prevent mortar from bonding to the foundation/concrete wingwall.

Construct all walls and facades plumb and level.

Provide ties in the full bed of mortar at 16-inches vertically and 24-inches horizontally and protect at least 2-inches into the stone veneer and block back-up or concrete back up. Do not place the ties closer than ¾ inch form the exterior face of the stone veneer.

Wet stone surfaces having ASTM C67 absorption rate over 0.025 ounces per square foot per minute. Use wetting method which ensures that each unit is nearly saturated but surface dry when laid. Use warm water in cold weather.

Cut stone units with motor driven saw design to cut with clean sharp, unchipped edges. Cut units as required to provide the stonework that is continuous across bends in the wall and to fit adjoining work neatly. Use full units with cutting wherever possible.

Heat either sand or mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F when working in air temperatures of 40 degrees F to 32 degrees F. Protect masonry from rain for 24-hours by covering with weather-resistant membrane.

Heat sand and mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F when working in air temperatures of 32 degrees F to 25 degrees F. Maintain temperature of mortar on boards above freezing. Completely cover masonry for 24-hours.

Heat sand and mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F when working in air temperatures of 24 degrees F to 20 degrees F. Maintain temperature of mortar on boards above freezing. Completely cover masonry with insulation blankets for 24-hours and provide heat sources on both sides of masonry construction. Provide wind breaks when wind velocity exceeds 15 mph.

Heat sand and mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F when working in air temperatures below 20 degrees F. Maintain minimum temperature of 30 degrees F of masonry units when they are laid. Maintain masonry temperature above 32 degrees F for 24 hours by enclosure and approved heat source, by electric blankets, by infrared lamps, or by other approved methods.

Mortar Bedding. Lay solid masonry units with completely filled mortar joints. Do not furrow bed joints. Butter ends of masonry units with sufficient mortar to fill head joints. Rock closures in place with head joints thrown against 2 adjacent masonry units in place. Fill vertical, longitudinal joints by parging either face of backing or back of facing. Do not pound corners and jambs to fit stretcher units after they are set in position. Where an adjustment must be made after mortar as started to harden, remove mortar and replace with fresh mortar.
Jointing. Provide a nominal 3/8-inch joint around split field stone and limestone blocks adjusted to unit shape and size. Tool mortar joints in exposed masonry when “thumbprint” hard with round or other approved jointer. Mortar joints much be cut flush in surfaces to be concealed by finished construction.

CMU’s. Do not install wet units.

Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar pointed to eliminate evidence of replacement. Perform work at no additional cost to the Department.

Solidly point all voids and holes. Cut out defective mortar joints and point with mortar.

Thoroughly clean face of stone. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels. Test cleaning methods on sample wall panel approximately 10 square feet in area as determined by the Engineer; leave half panel uncleaned for comparison purposes. Obtain Engineer’s approval of sample cleaning before proceeding with cleaning of masonry. Protect other surfaces during the cleaning process.

Dry brush exposed masonry at the end of each day’s work.

Use of wire brushes, acids, or solutions which might cause discoloration and/or damage to the masonry is expressly prohibited.

Pre-soak or saturate area to be cleaned. Flush the wall with water, from the top down. Starting at the top of wall, apply job-mixed detergent solution by means of the bucket and brush hand-cleaning method. When the use of proprietary masonry cleaning compound is approved by the Engineer, apply compound in compliance with the directions of the compound manufacturer. Rinse wall surfaces thoroughly with clean water after cleaning.

Cover the top of the wall(s) with a strong non-staining waterproof membrane at the end of each day or shut down. Cover partially completed walls when work is not in progress. Extend cover minimum 24-inches down both sides. Hold cover securely in place. When work is resumed, top surface of work must be cleaned of all loose mortar and in drying weather thoroughly wet.

Galvanize and apply the tie coat, intermediate coat, and top coat to the lintel steel material in the shop. Field repair damaged coatings in accordance with subsection 716.03.D.

Use metal flashing where it is indicated to be turned down at or beyond the wall face.

Use metal flashing with a drip edge or flexible flashing with a metal drip edge where flashing is partially exposed and is indicated to terminate at the wall face.

Use flexible flashing where it is fully concealed.

Solder stainless steel flashing using ASTM B32, Grade Sn60 Grade Sn96 with acid flux of type recommended by stainless steel sheet manufacturer.

Use elastomeric sealant conforming to ASTM C920, chemically curing urethane polysulfide silicone sealant; of type, grade, class, and use classifications required to seal joints in sheet metal
flashing and remain watertight.

Use adhesives, primers, and seam tape for flashings as recommended by the manufacturer of the flashing for bonding flashing sheets to each other and to substrates.

e. 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>Split Field Stone</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Limestone Block</td>
<td>Square Foot</td>
</tr>
<tr>
<td>Limestone Cap</td>
<td>Foot</td>
</tr>
<tr>
<td>Limestone Sign, “BANDEMER”</td>
<td>Each</td>
</tr>
<tr>
<td>Limestone Sign, “BARTON”</td>
<td>Each</td>
</tr>
<tr>
<td>Limestone Sign, “2024”</td>
<td>Each</td>
</tr>
</tbody>
</table>

**Split Field Stone**, includes furnishing all labor, materials and equipment as specified herein and/or as shown on the plans to install the façade and includes CMU’s to support it, mortar, properly coated lintel supports, and protection of materials regardless of weather conditions. The quantity will be measured based on the exposed stone surface area. The area of the CMU’s below grade is not included in the measurement but is included in the cost of this item.

**Limestone Block** includes furnishing all labor, materials and equipment as specified herein and/or as shown on the plans to install the façade and includes CMU’s to support it, mortar, properly coated lintel supports, and protection of materials regardless of weather conditions. The quantity will be measured based on the exposed stone surface area. The area of the CMU’s below grade is not included in the measurement but is included in the cost of this item.

**Limestone Cap** includes furnishing all labor, materials and equipment as specified herein and/or as shown on the plans to install the cap and includes mortar and protection of materials regardless of weather conditions. The quantity will be measured based on the linear foot installed along the top of the culvert headwall and wingwalls.

**Limestone Sign, ___** includes furnishing all labor, materials and equipment as specified herein and/or as shown on the plans to install the sign and includes CMU’s to support it, mortar, properly coated lintel supports, and protection of materials regardless of weather conditions. The quantity will be measured for each sign installed of the specified type.

Cost of mock-up is not paid for separately and is considered included in other items of work.
### PUBLIC UTILITIES

The existing utilities listed below and shown on these plans represent the best information available as obtained on our surveys. This information does not relieve the contractor of the responsibility to be satisfied as to its accuracy and the location of the existing utilities.

<table>
<thead>
<tr>
<th>Name Of Owner</th>
<th>Type of Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITY OF ANN ARBOR UTILITIES</td>
<td>MUNICIPAL</td>
</tr>
<tr>
<td>ANN ARBOR GAS</td>
<td>ELECTRIC</td>
</tr>
<tr>
<td>ANN ARBOR WATER</td>
<td>ELECTRIC</td>
</tr>
<tr>
<td>LUMEN</td>
<td>FIBER OPTIC</td>
</tr>
<tr>
<td>AMTRAK ENGINEERING DEPT</td>
<td>RAILROAD UTILITIES</td>
</tr>
</tbody>
</table>

### NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

<table>
<thead>
<tr>
<th>Title</th>
<th>ROAD</th>
<th>Plan No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAINAGE STRUCTURES</td>
<td>B-1-G</td>
<td></td>
</tr>
<tr>
<td>COVER K</td>
<td>R-15-G</td>
<td></td>
</tr>
<tr>
<td>CURB RAMP AND DETECTABLE WARNING DETAILS</td>
<td>R-28-K *</td>
<td></td>
</tr>
<tr>
<td>DRIVEWAY OPENINGS &amp; APPROACHES, AND CONCRETE STRUCTURAL</td>
<td>R-29-J *</td>
<td></td>
</tr>
<tr>
<td>CONCRETE CURB AND CONCRETE CURB &amp; GUTTER</td>
<td>R-30-G</td>
<td></td>
</tr>
<tr>
<td>ISOLATION JOINT DETAILS</td>
<td>R-37-B</td>
<td></td>
</tr>
<tr>
<td>LOCATION OF TRANSVERSE JOINTS IN PLAIN CONCRETE PAVEMENT</td>
<td>R-43-J *</td>
<td></td>
</tr>
<tr>
<td>GRANULAR BLANKET; UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS</td>
<td>R-86-F *</td>
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</tr>
<tr>
<td>UTILITY TRENCHES</td>
<td>R-83-C</td>
<td></td>
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<tr>
<td>BOX CULVERT JOINT ASSEMBLIES</td>
<td>R-84-A</td>
<td></td>
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<tr>
<td>PRECAST CONCRETE: END SECTION FOR PIPE CULVERT</td>
<td>R-86-F</td>
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<tr>
<td>SOIL EROSION &amp; SEDIMENTATION CONTROL MEASURES</td>
<td>R-96-E</td>
<td></td>
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<tr>
<td>CHAIN LINK FENCE (SWING TENSOON WIRE)</td>
<td>R-99-B</td>
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<tr>
<td>SEEDING AND TREE PLANTING</td>
<td>R-100-U</td>
<td></td>
</tr>
<tr>
<td>LIGHT STANDARD DETAILS</td>
<td>R-130-A *</td>
<td></td>
</tr>
</tbody>
</table>

### BRIDGE

- MOLDING, BEVELED LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS | B-103-F * |

### SHEET INDEX

<table>
<thead>
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<tr>
<td>Project Information/Notes/Miscellaneous Details</td>
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<td>Legend Sheet</td>
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<td>General Plan of Site</td>
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<tr>
<td>Typical Cross Sections</td>
<td>10.12</td>
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<tr>
<td>Removal, Restoration, Construction &amp; Profiles</td>
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<tr>
<td>Drainage Plan</td>
<td>19</td>
</tr>
<tr>
<td>Miscellaneous Details</td>
<td>20.27</td>
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<tr>
<td>Fencing Plan &amp; Details</td>
<td>26.30</td>
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<tr>
<td>Construction Staging and HST</td>
<td>31.42</td>
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<tr>
<td>General Plan of Structure</td>
<td>43.46</td>
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<td>Culvert Details</td>
<td>47.46</td>
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<tr>
<td>Culvert Aesthetic Details</td>
<td>48.52</td>
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<tr>
<td>Timber Pedestrian Bridge Details</td>
<td>53.64</td>
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<tr>
<td>Electrical Details</td>
<td>55.59</td>
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<tr>
<td>Soil Erosion &amp; Sedimentation Control Details</td>
<td>60</td>
</tr>
<tr>
<td>Soil Boring Data</td>
<td>61.65</td>
</tr>
<tr>
<td>Special Details</td>
<td>66.60</td>
</tr>
</tbody>
</table>

* Indicates a Special Detail which is included in this plan set.
RAILROAD NOTES

The railroad will furnish all ties, ballast, rails, and all necessary materials and labor for all track work on a force account basis.

The train movement and speed information shown in the proposal does not represent a commitment by the Amtrak railroad and is subject to change without notice.

The ground adjacent to the tracks and structure shall be graded by the contractor to provide drainage.

Design and construction must comply with Amtrak EP3005 – Pipeline Occupancy and EP3014 (available from Amtrak). Prior to construction operations, contractor must submit, at a minimum, the following to Amtrak for review and approval: construction procedure means and methods, deviation system, and calculations, as applicable. All calculations must be signed and stamped/sealed by a licensed engineer registered in the State of Michigan.

Design and construction must comply with Amtrak EP3031 – Track Monitoring for Work Disturbing Roadbed (available from Amtrak). In addition, see Special Provision for Railroad Track Monitoring.

All underground utilities, cable, and facilities must be located and protected before any excavation, drilling, boring, directional drilling, ground penetrating tests, or construction takes place. This includes railroad and commercial utilities, cable, duct lines, and facilities. Amtrak will be notified in advance of all railroad duct lines unless monitored by on-site Amtrak Communications and Signal (CAS) department personnel. Hand digging may be required, as directed by Amtrak through the on-site Amtrak CAS support personnel. Amtrak maintains the right to access all existing cables and conduits throughout construction. Amtrak also reserves the right to upgrade and install new cables and conduits in the affected area. The "MISS DIG" process must be followed. Please note that Amtrak is not a part of the MISS DIG process; contact Amtrak Engineering to have all railroad underground utilities and assets located. If requested by Amtrak, existing depths of utilities being crossed will be verified through test pits performed by the Contractor as directed by and under the direct supervision of Amtrak CAS support personnel. Precautions must be taken to prevent any interruption to MDOT Michigan Line operation.

Contractor must hand dig test pits to locate existing utility lines.

All contractors must execute the then-current version of Amtrak’s ‘Temporary Permit to Enter Upon Property’ which requires all persons that are on or adjacent to MDOT Michigan Line property successfully complete the Contractor Orientation Training. All Contractors must carry their ‘Amtrak Contractor Roadway Worker Protection’ card with them at all times while on or adjacent to MDOT Michigan Line property. This will not be paid for separately.

Any work (or equipment being staged onsite during construction) performed at or near a railroad crossing must not obstruct the view of crossing lights or gates to oncoming traffic.

Any debris or damage resulting from work shall be immediately reported to the railroad. Track work shall be repaired by railroad forces at project expense. Track removal and installation to be performed by Amtrak forces.

Amtrak ATM-23 Section 5 Track Cables Part 18. Before the tracks are returned to service, track cables shall be adjusted and tested in accordance with Amtrak instructions (or appropriate manufacturer’s instructions for audio frequency ovality circuits and/or proximity type detectors), as applicable. A check must be made of relay coil current and signal current (in CAS signal territory) when tracks are raised, cleaned, or welded rail is installed, to prevent over energized condition, loss of shutting sensitivity and decrease in broken rail protection.

Amtrak ATM-23 Section 5 Wire and Cable Part 211. Cable and wire installed within the track structure must be a minimum depth of 30 inches below the bottom of the tie and within conduit where possible and practical unless otherwise shown on plans. The ballast contours must be maintained during an excavation adjacent to or parallel to track structure.

All signal equipment to be relocated must be reviewed onsite by the Division Engineer to ensure that relocated equipment is satisfactory to both Amtrak & the designer.

The Division Engineer shall contact John Marsotti, Senior Manager Engineering, signal design and standards for support during the design phase.

Amtrak CAS personnel must verify that there is no signal equipment in the way of the project and that signal preview is not being obstructed.

Signal preview must not be obstructed. Contractor/Consultant performing work on railroad property must show that there is adequate signal preview. In addition, all temporary structures, forwork, equipment, etc. must comply during construction.

The railroad will permit the contractor to utilize the maintenance of way on the north side of the tracks for transporating materials and equipment to the site with access at Lake Shore Drive located 1/2 mile to the southeast. Use of the railroad ROW must be coordinated with Amtrak, requires flagging, and may have restrictions based on Amtrak operations.

The design calculations for the box culvert and weepings will be submitted to Amtrak for review and approval in addition to the reviews performed by the Engineer. The calculations must be stamped by a registered Engineer in the State of Michigan. This will not be paid for separately.

All earth excavation located on railroad right-of-way shall be treated as non-hazardous contaminated material and disposed of at a licensed facility. Documentation of this disposal shall be provided by the Contractor to the Engineer.

PROPERTY CORNERS

Any property corners within the front or back slope shall be staked and protected by ribbon. The replacement of any property corners that are damaged unnecessarily by the Contractor’s operations will be the financial responsibility of the Contractor. Re-establishment of all property corners will be performed by a Michigan licensed professional surveyor at the Contractor’s expense.

BENCHMARK ELEVATIONS

Benchmark elevations shown on these plans are based on NAVD 1988.

CONSTRUCTION & SOIL EROSION CONTROL SCHEDULE

Place silt fence and erosion protection as indicated on the plans or as directed by the Engineer.

Remove existing pavement and storm sewers. Grade construction areas. Install new storm sewer and construct curb and gutter. Immediately after construction, finish grade construction area to provide positive drainage; then topsoil and seed all disturbed grassed areas. Place seeding as specified in Typical.

Remove inlet filters as pavement is installed. After paving, retain stone filters at all pavement storm inlet structures, and clean storm sewer of all accumulated debris and sediment.

Remove temporary erosion controls after the site is approved by the Engineer.

It shall be the Contractor’s responsibility to insure that temporary erosion controls are maintained as required throughout construction and that the roadways are kept free of mud and construction debris.

UTILITIES

For protection of underground utilities and in conformance with Public Act 74, 2013, the Contractor shall dial 1-800-444-7067 (or 811) at least three full working days, excluding Saturdays, Sundays, and Holidays prior to beginning each excavation in areas where public utilities may be not previously located. Members will thus be routinely notified. This does not relieve the Contractor of the Responsibility of notifying utility owners who may not be a part of the “Miss Dig” alert system such as fiber optic carriers and Amtrak utilities in the railroad right-of-way.

The location of all public utilities shown on the plans are taken from the best available data. The Washtenaw County Parks and Recreation Commission will not be responsible for any omission or variation from the locations shown.

Construction operations shall be conducted in a manner so as to assure that those utilities not requiring relocation will not be disturbed. Repairs of utilities damaged during construction by the Contractor shall be the full responsibility of the Contractor in accordance with the affected utility owners’ requirements.

All private utility structures will be adjusted to grade by the owner of the facility. The Contractor shall provide the Engineer with three (3) working days notice prior to the start of such work. All costs incurred by utilities that have permission to utilize the railroad right-of-way shall be the responsibility of the Contractor except for any utility work shown on these plans.

CONSTRUCTING RIPRAP

Riprap shall be placed in accordance with the Michigan Department of Transportation 2020 Standard Specifications for Construction Subsection 513.03.6 and shall include furnishing and placing a geotextile liner as specified. This liner will be included in the contract unit price bid for the riprap item(s). All riprap shall be natural cobble. Crushed concrete is prohibited.

COVERS AND CASTINGS

Castings damaged by the Contractor shall be replaced at the expense of the Contractor, with material approved by the Engineer.

CULVERTS AND SEWERS

Culvert and sewer lengths shown on the plans are approximate lengths needed for placement. The pay quantity for the "C" dimension (see Standard Plan R-86-series). Payment shall be measured in the field.

FINISH EARTH GRADING

Construction of earth grades shall be Class "A". Refer to Section 305.03 of the 2020 MDOT Standard Specifications for Construction.

LANDSCAPING

The Contractor shall not disturb any landscaping features protected by fencing or located outside of the slope stake limits. Any landscaping that is damaged or destroyed during construction will become the financial responsibility of the Contractor.

OPEN EXCAVATIONS

The placement of protective fencing meeting Miosa Standards is required around all open excavations. This will not be paid for separately but will be considered as having been included in the Contract unit price bid for the item under construction.

PROPERTY OWNERS

Property owners’ names, shown on the plans, are for information only and their accuracy is not guaranteed.
TREE STUMP REMOVAL

The Contractor shall remove tree stumps and backfill holes that are within the grading limits. This work is included in the item “Shared use Path, Grading, Modified”. Numerous trees were removed as part of another project and any remaining stumps to be removed are included in this contract with the pay item “Shared use Path, Grading, Modified”.

AGGREGATE BASE

Aggregate bases for trail, road, and gravel path construction shall use aggregate 21AA limestone, unless otherwise specified. The use of crushed concrete is prohibited. Compact all aggregate bases to at least 95% of the maximum unit weight at a moisture content no greater than 2% of the optimum moisture content.

SIDEWALK AND CURB RAMP GRADES

All sidewalk and curb ramp grades shall be staked according to standard plan R-28 Series and as shown on the plans. It is the Contractor’s responsibility to install sidewalk to ADA standards and to ensure ADA standards are met after sidewalk placement. Any sidewalk or ramps not in compliance shall be replaced at the Contractor’s expense.

CLEARING

Clear and remove all brush, debris, stump, and trees less than six (6) inches DBH as shown within the grading limits or as directed by the Engineer. Paid for as “Shared use Path, Grading, Modified”.

SITE ACCESS

Site access to the proposed tunnel and pathway construction is limited by the Huron River, and the existing MDOT Rail Rights-of-Way. Use of the Bandemer Park bridge over the Huron River is limited to weight restrictions posted for this bridge. The Contractor shall provide a plan to protect the existing decking and calculations indicating their equipment will not exceed the existing structure load rating if it will be used. The plan and calculations must be approved by the Engineer prior to use of this structure. Use of the pedestrian bridge(s) over the Huron River is not permitted. Refer to the Railroad Notes above regarding available access along the railroad corridor from Lake Shore Dr.

SOIL BORINGS

Soil borings on the construction sheets represent point information. Presentation of this information in no way refers that subsurface conditions are the same at locations other than the exact location of the boring.

EXISTING SIGN RELOCATION

All permanent signs requiring relocation due to Contractor operations shall be salvaged and reset by the Contractor at locations determined by the Engineer. Signs and posts damaged during the removal and storage operations shall be replaced with new signs and posts. The cost of this work shall be borne by the Contractor.

SIGN INSTALLATION

When attaching signs to supports, tighten the nut, not the bolt head.

Nylon washers shall be placed between steel washers and the sign face sheeting. The washers are to be considered part of the attaching devices and hardware. Nylon washers shall have a 3/8 inch inner diameter, a 7/8 inch outer diameter and a 1/16 inch thickness.

UNDERGROUND CONFLICTS

The Contractor shall expose existing storm sewers, sanitary sewers, water main and private utilities to verify existing elevations before commencing work on a proposed storm sewer or water main that is to cross other utilities. This work will not be paid as exploratory excavation unless previously authorized by the Engineer.

CONCRETE JOINTS

Tooled joints are not allowed, sawcut contraction joints in all concrete pavement in accordance with the standard plan series R-39. For irregular concrete pavement shapes, review the jointing plan with the Engineer prior to sawcutting. Provide isolation joints in accordance with the standard plan series R-37.

CLEANING PAVEMENT

Before placing any HMA mixture, the surface of the existing pavement including all curbs, cracks, joints, and the surface of the new base and leveling courses, shall be thoroughly cleaned of all debris and dirt. This work will not be paid for separately, but will be considered as having been included in the contract unit price list for other HMA items.

CASTINGS FOR INLETS AND CATCH BASINS

All MDOT Castings except Type B shall have the words “DUMP NO WASTER, DRAINS TO WATERWAYS” permanently casted to the cover. Existing structures to remain shall receive new castings as shown in the plans.

TREE REMOVALS

Miscellaneous tree removal may be required only as directed by the Engineer. Removals and branch trimming shall only occur between October 1 and March 31. The Contractor shall consult with a certified arborist if removing is necessary outside this period. Tree sizes are shown on the plans sheets. Some trees are located in the field and these tags are shown on the plan sheets where applicable.

A walkthrough shall be scheduled to identify final tree removals with the Engineer and Owner prior to starting any tree removals.

TREE PLANTING

Plant trees in accordance with MDOT Standard Plan R-100 Series. Water and cultivate trees in accordance with Section 815 of the 2020 Standard Specifications for Construction. The location of all trees shall be determined by the Engineer.

RESTORATION

The following pay items are included in the Contract:

Turf Establishment, Turf Grass, Performance: Turf Establishment, Native Grass Mix, Mesic Tallgrass, Performance.

Restore areas as directed by the Engineer in the field. The following station ranges provide a rough estimate of restoration required. Verify with the Engineer prior to the start of restoration.

Turf Grass – Entire length of project within 8-foot of edge of path to limits of grading, whichever is less except that Turf Grass with b: used for the entire grading limits from Station 140+04 to the POE along the east side of the path the entire grading lengths.

Mesic Tallgrass – Station 137-00 to 140+34 beyond the limits of the Turf Grass noted above and from Sta 140+94 to the start of the permanent sheet piling wall on the west side of the path beyond the limits of the Turf Grass noted above.

Side slopes vary throughout the project. Ensure that the proposed mulch blanket is suitable for the given side slopes. Provide shop drawings for all proposed restoration materials.

On railroad right-of-way, the Contractor shall be responsible for the following slope restoration activities:

1. The Engineer will inspect the seeded turf to ensure the end product is well established, in a vigorous growing condition, and contains the species called for in the seeding mixture.
2. If an area washes out for reasons attributable to the Contractor’s operation or failure to take proper precautions, replacement will be at the Contractor’s expense.

MISCELLANEOUS QUANTITIES

The following items of work shall be done as they apply throughout the project. These items are not detailed or shown on subsequent plan sheets and should be used only as directed by the Engineer.

MISCELLANEOUS QUANTITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Control, Inlet Protection, Fabric Drop</td>
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<td>2</td>
</tr>
<tr>
<td>Erosion Control, Gravel Access Armoring</td>
<td>Ea</td>
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</tr>
<tr>
<td>Certified payrolls and reporting</td>
<td>Ea</td>
<td>2</td>
</tr>
<tr>
<td>Contractor staking</td>
<td>Ea</td>
<td>2</td>
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<tr>
<td>Site preparation, Max</td>
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<td>2</td>
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<tr>
<td>Certified payrolls and reporting</td>
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<tr>
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<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Items</th>
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<tbody>
<tr>
<td>Schizachyrium scoparium, #3 cont.</td>
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<tr>
<td>Panicum virgatum 'Shenandoah', #3 cont.</td>
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<tr>
<td>Calamagrostis x acutiflora 'Karl Foerster', #3 cont.</td>
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<tr>
<td>Lindera benzoin, #5 cont.</td>
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<tr>
<td>Cornus stolonifera 'Farrow', #5 cont.</td>
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<tr>
<td>Cephalanthus occidentalis, #5 cont.</td>
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<td>Amelanchier x grandiflora 'Autumn Brilliance', 8 foot</td>
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<tr>
<td>Cornus florida, 2 1/2 inch</td>
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<tr>
<td>Cercis canadensis, 2 1/2 inch, multi-stem</td>
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<tr>
<td>Quercus bicolor, 3 inch</td>
<td>Ea</td>
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</tr>
<tr>
<td>Nyssa sylvatica, 3 inch</td>
<td>Ea</td>
<td>5</td>
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<tr>
<td>Acer saccharum 'Bailsta' FALL FIESTA, 3 inch</td>
<td>Ea</td>
<td>5</td>
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<tr>
<td>Tilia americana, 3 inch</td>
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<tr>
<td>Platanus occidentalis, 3 inch</td>
<td>Ea</td>
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<tr>
<td>Viburnum lentago, #5 cont.</td>
<td>Ea</td>
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<tr>
<td>Viburnum acerifolium, #5 cont.</td>
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<tr>
<td>Hamamelis virginiana, #5 cont.</td>
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<tr>
<td>Aronia melanocarpa, #5 cont.</td>
<td>Ea</td>
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<td>Watering and Cultivating, 2nd Season, Min</td>
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<td>Watering and Cultivating, First Season, Min</td>
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<tr>
<td>Site Preparation, Max</td>
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<tr>
<td>Certified payrolls and reporting</td>
<td>Ea</td>
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<tr>
<td>Contractor staking</td>
<td>Ea</td>
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MISCELLANEOUS QUANTITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Control, Gravel Access Armoring</td>
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<td>Certified payrolls and reporting</td>
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<tr>
<td>Contractor staking</td>
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### Water & Sewer Utility Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>CO</td>
<td>Storm Water</td>
</tr>
<tr>
<td>CB</td>
<td>Cast Iron Pipe</td>
</tr>
<tr>
<td>CM</td>
<td>Concrete Manhole</td>
</tr>
<tr>
<td>CMY</td>
<td>Concrete Manhole Cover</td>
</tr>
<tr>
<td>CMW</td>
<td>Concrete Manhole Wells</td>
</tr>
<tr>
<td>CH</td>
<td>Service Line</td>
</tr>
<tr>
<td>CI</td>
<td>Concrete Inlet</td>
</tr>
<tr>
<td>CKB</td>
<td>Concrete Kerb</td>
</tr>
<tr>
<td>KSB</td>
<td>Concrete Kerb Box</td>
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<tr>
<td>PSE</td>
<td>Power Pole</td>
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### Miscellaneous Utility Symbols

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<tr>
<td>G</td>
<td>Gas Line</td>
</tr>
<tr>
<td>S</td>
<td>Sewer Line</td>
</tr>
<tr>
<td>L</td>
<td>Lift Station</td>
</tr>
<tr>
<td>F</td>
<td>Fire hydrant</td>
</tr>
<tr>
<td>W</td>
<td>Water Meter</td>
</tr>
<tr>
<td>S</td>
<td>Spinaleer Box</td>
</tr>
<tr>
<td>A</td>
<td>Abandon Valve</td>
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</tbody>
</table>

### Proposed

- Storm Water
- Cast Iron Pipe
- Concrete Manhole
- Concrete Manhole Cover
- Concrete Manhole Wells
- Service Line
- Concrete Inlet
- Concrete Kerb
- Concrete Kerb Box
- Power Pole
- Abandon Valve

### Topo Pattern

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Terrain Feature</td>
</tr>
<tr>
<td>B</td>
<td>Topographic Feature</td>
</tr>
<tr>
<td>C</td>
<td>Contour Line</td>
</tr>
<tr>
<td>D</td>
<td>Road Feature</td>
</tr>
</tbody>
</table>

### If Necessary for Clarity

- Yard Lines
- Street Lines
- Property Lines
- Roads
- Railroad Tracks

### Special Legend

- Ramps, Sidewalks
- Interchange Towers, etc.
### Alignment Curve data

<table>
<thead>
<tr>
<th>Curve</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>PC</th>
<th>PC Station</th>
<th>Type</th>
<th>X</th>
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<th>Z</th>
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</table>

**NOTE:** SEE TUNNEL ALIGNMENT PLAN FOR CURVE INFORMATION FROM STA 1.38+00 TO P.O.E.
SECTION APPLIES TO:
STA 137+79 TO STA 140+18.33
12' PATH CUT

SECTION APPLIES TO:
STA 141+5.66 TO STA 141+45
16' PATH CUT

SECTION APPLIES TO:
STA 141+97 TO STA 142+99
12' PATH WITH SHEET PILE

SECTION APPLIES TO:
RECONSTRUCTED B2B TRAIL
ALONG BANDEMER PARK ROAD

SECTION APPLIES TO:
STA 0+00 TO STA 2+70
PROPOSED STREAM
SECTION APPLIES TO:
STA 140+18.33 TO STA 140+32 AND
STA 140+92 TO STA 141+5.66
CULVERT APRON SECTION

SECTION APPLIES TO:
STA 140+32 TO STA 140+92
CULVERT SECTION
SHOULDER EDGE DETAIL
APPLIES TO STA 135+00 TO 137+66
(NOT TO SCALE)
MISCELLANEOUS QUANTITIES

<table>
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<tr>
<th>Unit</th>
<th>items</th>
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</thead>
<tbody>
<tr>
<td>Turf Establishment, Native Seed Mix, Mesic Woodland Mix, Performance</td>
<td>1170</td>
</tr>
<tr>
<td>Turf Establishment, Turf Grass, Performance</td>
<td>1130</td>
</tr>
<tr>
<td>Erosion Control, Silt Fence</td>
<td>550</td>
</tr>
<tr>
<td>HMA Surface, Rem</td>
<td>310</td>
</tr>
</tbody>
</table>

* BID ITEM "HMA Surface, Rem" INCLUDES PARTIAL CURB REMOVAL TO THE LIMITS SHOWN ON THE DETAILS. ADDITIONAL REMOVALS SHALL BE APPROVED BY OWNER.
MISCELLANEOUS QUANTITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Shared use Path, Aggregate</td>
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<tr>
<td>Shared use Path, Concrete, 6 inch</td>
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</tr>
<tr>
<td>Shared use Path, Aggregate, 8 inch, Modified</td>
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<tr>
<td>Shared use Path, Grading, Modified</td>
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<tr>
<td>Curb, Conc, Det E1</td>
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</tbody>
</table>

Items

66  148  542  698  394  305

CAT 0001
JN 123456
SHOWING GRADE BREAK OF PROPOSED PATHWAY & EXISTING SIDEWALK CONNECTION

MATCH EXISTING PATHWAY, R = 5'
N = 293214.32
E = 13291110.40

MATCH EXISTING

GRADE BREAK
L ± 783.61
E
STA 143+04.86

GRADE BREAK
L ± 783.62
E
STA 143+05.86

GRADE BREAK
L ± 783.63
E
STA 143+06.86

GRADE BREAK
L ± 783.64
E
STA 143+07.86

GRADE BREAK
L ± 783.65
E
STA 143+08.86

GRADE BREAK
L ± 783.66
E
STA 143+09.86

RECONSTRUCTED PATH
PROP SHEET, EXISTING CROSS SLOPE OF CURB AND ELEVATION BASED ON MATCH EXISTING ALIGNMENT AND PROFILE

MATCH EXISTING CURB FOR LOCATION AS DIRECTED BY FOUNDATION (EXACT 5'-0" X 5'-0"
MAP SIGN (SEE FENCING PLAN)

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MAP SIGN (SEE FENCING PLAN)

MATCH EXISTING CURB FOR LOCATION AS DIRECTED BY FOUNDATION (EXACT 5'-0" X 5'-0"
MAP SIGN (SEE FENCING PLAN)
MODULAR WALL SECTION – HURON RIVER DRIVE PARKING LOT

*NOTE INCLUDED IN THE PAY ITEM "MODULAR BLOCK WALL"

( NOT TO SCALE )

MODULAR WALL ELEVATION – HURON RIVER DRIVE PARKING LOT

( NOT TO SCALE )

QUANTITY SHEET

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>UNIT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>FT</td>
<td>Modular Block Wall, Cap</td>
</tr>
<tr>
<td>0</td>
<td>FT</td>
<td>Modular Block Wall</td>
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</table>
PLAN OF SHEET PILE WALL

SECTION A-A THRU SHEET PILE WALL

SHEET PILE WALL ELEVATION

MISCELLANEOUS QUANTITIES
**FENCE DETAILS**

1" = 30'  
30 HORIZ. (FT)  
30 VERT. (FT)

**CITY OF ANN ARBOR PRS & WASHTENAW COUNTY PRC**  
**BARTON/BANDEMER PARK PEDESTRIAN TUNNEL PROJECT**

**4/12/2024**

**JAH**

**7050 W. SAGINAW HWY, SUITE 200**  
**LANSING, MI 48917**  
**P (517) 272-9835  |  F (517) 272-9836**

**SHEET DATE**

**PROJ MGR**

**ENG**

**PROJ NUMBER**

**REVISIONS:**

**COUNTY**  
**CITY/VILLAGE/TOWNSHIP**

**SCALE**

**HORIZONTAL RAILS**

**POST (TYP)**

**TOP OF CULVERT**

**PICKET (TYP)**

(SEE FENCE POST BASE PLATE DETAIL)

**FENCE POST ANCHORAGE**

(MAX)

4"  
4" (TYP)

3'-0"  
4'-8"  
6'-0"

8'-3"

5'-2"

**VERTICAL RAILS**

**POST (TYP)**

**BASE PLATE**

**ANCHOR BOLT DETAIL**  
**USING NUTS & LOCK WASHERS (TYP)**

**FENCE POST BASE PLATE DETAIL**

**SECTION A-A**

**DETAIL A**

**DETAIL B**

**NOTES:**

* INSTALL GROUND MOUNTED FENCE BEHIND WINGWALL WITH CONCRETE FOOTINGS FOR MANUFACTURER'S RECOMMENDATIONS WHILE TAKING PRECAUTIONS TO AVOID WINGWALL ANCHORAGE.

ALL CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

ALL HARDWARE (BOLTS, BRACKETS, ETC.) TO MATCH THE RAIL COLOR.

THE FABRICATOR SHALL DESIGN ALL CONNECTIONS AND MEMBERS NOT PROVIDED ON THESE PLANS.

AMTRAK FENCING (BY OTHERS)

**CONCRETE FOOTINGS**

**29 of 80**
ELEVATION OF FENCE (72'' CHAINLINK & 14'-0'' GATE)
FROM NEW CULVERT WINGWALL TO M-14 FREEWAY BREDE PIER

GENERAL REQUIREMENTS:
1. Frame - 2'' O.D.
2. Brace - 3/8'' Rod. (See Note 9)
3. 9 GA, 2'' Mesh Chain Link Fabric, Barbed Sevage Top & Bottom
4. Adjustable Tension and Fitting.
5. Frame 1 1/2'' O.D.
6. Brace Rail 1 1/4'' O.D. at 2 1/2'' P.F.
7. Corner or End Post 7 1/4'' O.D. Pipe at 5 7/9'' P.G.
8. Tension Wire - 7 GA.
9. Hook Ring 2 1/2'' O.D. at 1 1/4'' O.C. x
10. Line Post 2 3/4'' O.D. Pipe at 3 4/5'' P.G.
11. Single Gate Posts - 3 1/2'' O.D. Pipe at 3 4/5'' P.G.
12. Double Gate Posts - 4'' O.D. Pipe at 5 7/9'' P.G.

NOTES:
1. Amtrak to provide two 20'' long chains and padlock. One end of the chain shall be securely bolted to the face of the gate frame.
2. All fence components shall be galvanized and powder coated black.
3. All line posts shall be same length unless otherwise specified.
4. Tension Wire Clips at 1'-6'' O.C. 12 GA. Wire.
5. Corner post shall be installed where change in fence horizontal alignment exceeds 15 degrees.
6. The structural framework in each fence contract section shall be uniform and shall consist of round tubular shapes for line, end, and corner posts as indicated.
7. All concrete shall be grade S2.
8. Gravel at the bottom of the tubular posts shall be aggregate, KA.
9. Diagonal bracing for two panels on each side of gate opening and corners.
10. Details are based on Amtrak standards for right-of-way fencing chain link 72'' high no barbed wire. See Amtrak drawing 8P001.
STEEL SHEETING - ELEVATION (ALTERNATIVE A)

TYPICAL NORTH SIDE AND SOUTH SIDE SHEETING LINES
STEEL SHEETING PILING - ELEVATION (ALTERNATIVE A)

Typical north and south side sheeting lines after sheeting is pulled and sheeting left in place is cut.

31'-0" LIMITS OF STEEL SHEET PILING, TEMP.
LEFT IN PLACE, SPECIAL, MINIMUM SECTION MODULUS OF SHEETING = 48,600 kip/ft (AZ 26)
CUT TO ELEV SHOWN WHEN NO LONGER NEEDED

81'-0" LIMITS OF HAND RAIL FENCE SYSTEM AS FALL PROTECTION
ALL COSTS INCLUDED IN OTHER BID ITEMS AND WILL NOT BE PAID FOR SEPARATELY

Approach top of Track EL 798.85

Lay of Cut Steel Sheet Piling, Temp., Left in Place, Special
CONSTRUCTION STAGING DETAILS

1" = 10' 0
HORIZ. (FT) 10
VERT. (FT) 0

CITY OF ANN ARBOR PRS & WASHTENAW COUNTY PRC
BARTON/BANDEMER PARK PEDESTRIAN TUNNEL PROJECT

4/12/2024
JAH
JAH
JAH
WASHTENAW
CITY OF ANN ARBOR
NAD83
NAVD88

7050 W. SAGINAW HWY, SUITE 200
LANSING, MI 48917
P (517) 272-9835  |  F (517) 272-9836

SHEET DATE
PROJ MGR
ENG
PROJ NUMBER

REVISIONS:

COUNTY
CITY/VILLAGE/TOWNSHIP

SCALE

HORIZ DATUM

VERT DATUM

STEEL SHEETING - ELEVATION (ALTERNATIVE B)

TYPICAL North SIDE AND SOUTH SIDE SHEETING LINES

& PROP CULVERT

B1-2' LIMITS OF HAND RAIL FENCE SYSTEM AS FALL PROTECTION
ALL COSTS INCLUDED IN OTHER BID ITEMS AND WILL NOT BE PAID FOR SEPARATELY

61'-3" LIMITS OF STEEL SHEET PILING, TEMP.
LEFT IN PLACE; SPECIAL WINDER SECTION MODULUS
OF SHEETING = 44 4 W10/17 (AZ 26)

APPROX TOP OF TRACK EL 795.35

39'-6"
39'-4"

12'-7"
OPEN

EXIST GROUND BEHIND SHEETING (CL 785.00)

TOP OF SHEETING (CL 786.00)

5'-0" (LIMITS OF LOWER LATERAL BRACING)

24'-0" (LIMITS OF UPPER LATERAL BRACING); 4'-8" MAX TIE ROD SPACING (4 STRANDS)

Hmax = 19'-10"

Hmin = 20'-0"

24'-0"

BOTT/SHTG

FLAT AREA

SPECIAL TO EL. 769.29 IN CUT OFF STEEL SHEET PILING, TEMP, LEFT IN PLACE, SPECIAL TO THE EXCAVATION LINE CL 765.0; BELOW BOTTOM OF EXCAVATION (WHICHEVER ELEV IS LOWER)

LIMIT EL 783.00

CUT OFF STEEL SHEET PLACING, TEMP, LEFT IN PLACE, SPECIAL TO EL 783.00 IN FLAT AREA

LIMIT EL 788.50

CUT OFF STEEL SHEET PLACING, TEMP, LEFT IN PLACE, SPECIAL TO EL 788.50 IN FLAT AREA

LIMIT EL 789.96

APPROX TOP OF TRACK (CL 795.35)

TOP OF SHEETING

48'-0" (LIMITS OF UPPER LATERAL BRACING); 4'-8" MAX TIE ROD SPACING (4 STRANDS)

Hmax = 19'-10"

Hmin = 20'-0"

81'-0" LIMITS OF HAND RAIL FENCE SYSTEM AS FALL PROTECTION

FLAT AREA

SPECIAL TO EL. 769.29 IN CUT OFF STEEL SHEET PILING, TEMP, LEFT IN PLACE, SPECIAL TO EL 765.0; BELOW BOTTOM OF EXCAVATION (WHICHEVER ELEV IS LOWER)

LIMIT EL 783.00

CUT OFF STEEL SHEET PLACING, TEMP, LEFT IN PLACE, SPECIAL TO EL 783.00 IN FLAT AREA

LIMIT EL 788.50

CUT OFF STEEL SHEET PLACING, TEMP, LEFT IN PLACE, SPECIAL TO EL 788.50 IN FLAT AREA

LIMIT EL 789.96

FLAT AREA

TOP OF SHEETING

48.4 IN3 / FT (AZ 26)

4'-8" MAX TIE ROD SPACING (4 STRANDS)

31'-0" (LIMITS OF LOWER LATERAL BRACING)

24'-0"

15'-6"

15'-6"

4'-8" MAX TIE ROD SPACING (4 STRANDS)

31'-0"

24'-0"

Hmax = 19'-10"

Hmin = 20'-0"

81'-0" LIMITS OF HAND RAIL FENCE SYSTEM AS FALL PROTECTION

ALL COSTS INCLUDED IN OTHER BID ITEMS AND WILL NOT BE PAID FOR SEPARATELY

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ALL COSTS INCLUDED IN OTHER BID ITEMS AND WILL NOT BE PAID FOR SEPARATELY

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STEEL SHEETING PILING - ELEVATION (ALTERNATIVE B)

Typical north side and south side sheeting lines after sheathing is pulled and sheathing left-in-place is cut.

- Cut off sheeting to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.
- Cut off transverse sheeting left in place to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.
- Cut off transverse sheeting left in place to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.

Sheeting is pulled and sheeting left-in-place is cut.

NOTE: All costs included in other bid items and will not be paid for separately.

TYPICAL NORTH SIDE AND SOUTH SIDE SHEETING LINES AFTER SHEETING IS PULLED AND SHEETING LEFT-IN-PLACE IS CUT

- Cut off sheeting to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.
- Cut off transverse sheeting left in place to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.
- Cut off transverse sheeting left in place to ELEV 786.5 max to ensure 3'-0" minimum between bottom of tie and top of sheeting left in place.

Sheeting is pulled and sheeting left-in-place is cut.

NOTE: All costs included in other bid items and will not be paid for separately.
### SECTION THRU RR TRACKS - STAGE 1

**Wingwalls and Headwall Not Shown**

**Alternative A or Alternative B**

- **Prop CULverts**
  - Built in Stage 1
  - Built in Stage 2A & 2B

- **Prop Culverts (1' Thick)**
  - Relocated in Stage 2A

- **Cable from Stage 1A**
  - Supported Aerial Cable

- **Schwing Cables**
  - **Existing Lumen F/O**
  - **Existing Amtrak F/O**

- **Cable on Either Side of Culvert**
  - Relocated in Stage 1 (By Lumen)
  - Supported Aerial Cable

- **Cable From Schwing**
  - Supported Aerial Cable

- **Wingwalls and Headwall Not Shown**

**Limits of Excavation EL 769.29**

**Prop CULverts**

- **Built in Stage 1**
- **Built in Stage 2A**
- **Prop Culvert**
  - In Stage 1 & 2A

- **Prop Culvert (1' Thick)**
  - Relocated in Stage 2A

- **Prop Culverts (1' Thick)**
  - In Stage 1 & 2A

- **Prop Culverts (1' Thick)**
  - In Stage 2A

- **Prop Culverts (1' Thick)**
  - In Stage 2B

**Wingwalls and Headwall Not Shown**

**Alternative A or Alternative B**

- **Prop CULverts**
  - Built in Stage 1
  - Built in Stage 2A & 2B

- **Prop Culverts (1' Thick)**
  - Relocated in Stage 2A

- **Cable from Stage 1A**
  - Supported Aerial Cable

- **Schwing Cables**
  - **Existing Lumen F/O**
  - **Existing Amtrak F/O**

- **Cable on Either Side of Culvert**
  - Relocated in Stage 1 (By Lumen)
  - Supported Aerial Cable

- **Cable From Schwing**
  - Supported Aerial Cable

**Limits of Excavation EL 769.29**

**Prop CULverts**

- **Built in Stage 1**
- **Built in Stage 2A**
- **Prop Culvert**
  - In Stage 1 & 2A

- **Prop Culvert (1' Thick)**
  - Relocated in Stage 2A

- **Prop Culverts (1' Thick)**
  - In Stage 1 & 2A

- **Prop Culverts (1' Thick)**
  - In Stage 2A

- **Prop Culverts (1' Thick)**
  - In Stage 2B

**Wingwalls and Headwall Not Shown**

**Alternative A or Alternative B**
NOTES:

1. Signs shall be placed on the northern side of the Huron River crossing heading south, distance ahead sign shall state 625 miles ahead.
2. Signs shall be placed on the north side of fishing club parking lot at the trail heading north, distance ahead sign shall state 25 miles ahead.
3. Signs shall be placed on the west side of Michigan Line Amtrak at the trail heading north, distance ahead sign shall state 25 miles ahead.
4. Signs shall be placed on the western side of Michigan Line Amtrak at the trail heading north, distance ahead sign shall state 25 miles ahead.
5. Signs shall be placed on the trail between the trail crossing at the South Barton trail split heading south, distance ahead sign shall state 25 miles ahead.
6. All temporary traffic control devices shall be placed in accordance with the City of Ann Arbor Parks & Recreation Commission Standards using common temporary methods to MINOR TRAFFIC DEVICES.
7. All temporary traffic control devices shall be placed in accordance with the City of Ann Arbor Parks & Recreation Commission Standards using common temporary methods to MINOR TRAFFIC DEVICES.
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15. All temporary traffic control devices shall be placed in accordance with the City of Ann Arbor Parks & Recreation Commission Standards using common temporary methods to MINOR TRAFFIC DEVICES.
NOTES:

1. THE SOUTH BARTON NATURE TRAIL PEDESTRIAN STRUCTURE SHALL BE CLOSED TO ALL TRAFFIC DURING CONSTRUCTION.
2. THE CONTRACTOR MAY USE AN AREA OF THE PARKING LOT IN MICHIGAN CITY SOUTH OF THE BARTON NATURE TRAIL STRUCTURE FOR EQUIPMENT, MATERIAL, STORAGE, AND EMPLOYEE PARKING. THE USE OF ANY TRAILS OR GRASS AREAS FOR THESE PURPOSES IS STRICTLY FORBIDDEN.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF WORK ZONES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF WORK ZONES PRIOR TO BEGINNING WORK.
4. THE CONTRACTOR SHALL RESTRICT ACCESS TO THE DESIGNATED WORK ZONES. THE USE OF CHEMICALS OR OTHER SUBSTANCES TO ACCELERATE THE PROGRESS OF WORK IS STRONGLY DISCOURAGED.
5. THE CONTRACTOR SHALL ENSURE THAT ALL WORK ZONE LIMITS AND CONSTRUCTION SIGNS ARE CLEARLY VISIBLE AND EASILY SEEN BY THE DISTANCE DRIVER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF WORK ZONES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF WORK ZONES PRIOR TO BEGINNING WORK.
7. THE CONTRACTOR SHALL ENSURE THAT ALL WORK ZONE LIMITS AND CONSTRUCTION SIGNS ARE CLEARLY VISIBLE AND EASILY SEEN BY THE DISTANCE DRIVER.
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10. THE CONTRACTOR SHALL ENSURE THAT ALL WORK ZONE LIMITS AND CONSTRUCTION SIGNS ARE CLEARLY VISIBLE AND EASILY SEEN BY THE DISTANCE DRIVER.

TRAFFIC CONTROL DEVICE LEGEND:
- **PLASTIC DRUMS**
- **FENCE, PROTECTIVE (CHAIN LINK)**
- **TYPE III PEDESTRIAN BARRICADE/CHANNELIZER**
- **TYPE II BARRICADE**
- **TEMPORARY TRAFFIC CONTROL SIGN**

APPLIES TO: HURON RIVER DRIVE

FLAT PLANE DETAIL

PLACE SIGNS ON THE RIGHT SIDE OF THE ROADWAY AT 250' SPACING

CLOSEST TO WORK ZONE

WURON RIVER DR

HIGHEST

SPEED LIMIT

CITY OF ANN ARBOR PRS & WASHTENAW COUNTY PRC
BARTON/BANDEMER PARK PEDESTRIAN TUNNEL PROJECT

TRAFFIC CONTROL DETAILS

4/12/2024

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NOTES:

1. THE BANDEMER PARK BRIDGE SHALL BE CLOSED TO VEHICLE TRAFFIC DURING PATHWAY CONSTRUCTION IMPACTING EXISTING PAVED TRAIL. SPECIAL
   CONSIDERATION WILL BE MADE FOR AUTHORIZED VEHICLES AND CONTRACTOR ACCESS. PLANNED WIDENING AND INSTALLATION OF PROPOSED WORK.
2. THE CONTRACTOR WILL ENSURE ACCESS INTO THE DESIGNATED WORK AREA WITH 6' CHAIN-LINK FENCING AND LOCKED GATE ACCESS.
3. THE CONTRACTOR WILL ENSURE AUTHORIZED CROSSING OR USE OF RAILROAD TRACKS WILL BE PERMITTED IN ACCORDANCE WITH MICHIGAN AND FEDERAL
   LAW.
4. RETAIN ALL EXISTING ROAD AND TRAIL SIGNS. COVER ANY CONFLICTING ROAD OR TRAIL SIGNS.
5. PLACE W20-1 "ROAD WORK AHEAD" SIGN AT THE NORTH DRIVEWAY ENTRANCE INTO BANDEMER PARK ONLY. PLACE SUFFICIENT NUMBER OF TYPE III
   BARRICADES TO CLOSE THE DRIVEWAY FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT WITH NO GAPS BETWEEN BARRICADES. DURING WORK
   HOURS, OFFSET BARRICADES TO ALLOW CONSTRUCTION TRAFFIC ACCESS BUT MAINTAIN VISUAL ROAD CLOSURE. PLACE SIGNS R11-2, R5-11, AND SPECIAL
   SIGN 3 BEHIND BARRICADES ON SEPARATE SIGN SUPPORTS.
6. PLACE TYPE II PEDESTRIAN BARRICADE TO COMPLETELY CLOSE THE TRAIL.
7. PLACE TEMPORARY TRAFFIC CONTROL SIGN IN ACCORDANCE WITH NOTE 6 AND FOR UNDERGROUND ELECTRICAL WORK AS DIRECTED BY ENGINEER.
8. CONTRACTOR/AMTRAK TEMP ACCESS GATE INCLUDED IN ITEM: FENCE, PROTECTIVE (8' CHAIN-LINK) FURNISH AND OPERATE INCLUDED IN ITEM: MINOR
   TRAFFIC DEVICES.

TRAFFIC CONTROL DEVICE LEGEND:

- PLASTIC DRUMS
- FENCING, PROTECTIVE (OF CHAIN LINK)
- TYPE I PEDESTRIAN BARRICADE/CHANNELIZER
- TYPE II BARRICADE
- TEMPORARY TRAFFIC CONTROL SIGN

SPECIAL SIGN 1

11.3 (3')

SPECIAL SIGN 2

11.3 (3')

SPECIAL SIGN 3

11.3 (3')

SPECIAL SIGN 4

11.3 (3')

SPECIAL SIGN 5

11.3 (3')
1. After the Bandemer Park Bridge shall remain open to vehicle and pedestrian traffic during this stage of construction with work activities taking place outside of the fenced pathway.

2. Maintain a minimum of 50' working distance adjacent to the temporary chain-link fence.

3. The Contractor shall field verify all existing and proposed dimensions prior to fabrication and installation of proposed work.

4. The Contractor shall restrict access into the designated work area with the chain-link fence and locked gate access.

5. Place "No Access To Huron River Dr" sign at the start and end of construction fencing and on temporary contractor/railroad access as shown on this sheet.

6. Retain all existing road and trail signs. Cover any conflicting road or trails signs.

7. Fines and penalties for unauthorized crossing of railroad tracks shall be posted in accordance with Michigan and federal law.

8. Place "No Access To Huron River Dr" sign at the start and end of construction fencing and on temporary contractor/railroad access as shown on this sheet.

9. Maintain a minimum 5' paved walking pathway adjacent to the temporary chain-link fence.

10. Activities taking place outside of the paved pathway.

11. The Bandemer Park Bridge shall remain open to vehicle and pedestrian traffic during this stage of construction with work activities taking place outside of the fenced pathway.

TRAFFIC CONTROL DEVICE LEGEND:

- Plastic drums
- Fencing, protective (chain-link)
- Type II Pedestrian barricade/Channelizer
- Type II barricade
- Temporary traffic control sign

FENCE, PROTECTIVE: INCLUDED IN ITEM
TEMP ACCESS GATE: CONTRACTOR/AMTRAK

NOTES:

1. Extend temporary chain-link fencing behind bridge approach railing.

2. Temporary Contractor/Railroad access.

3. Maintain a minimum 5' paved walking pathway adjacent to the temporary chain-link fence.

4. Temporary Contractor/Railroad access.

5. Contractor Nh access gate included in temp fence, protection.

6. Temporary Contractor/Railroad access.

7. Contractor Nh access gate included in temp fence, protection.

8. Contractor Nh access gate included in temp fence, protection.

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70. Contractor Nh access gate included in temp fence, protection.

71. Contractor Nh access gate included in temp fence, protection.
TRAFFIC CONTROL DETAILS

SPECIAL SIGN 1

SPECIAL SIGN 2

SPECIAL SIGN 3

SPECIAL SIGN 4

SPECIAL SIGN 5

SPECIAL SIGN 6

SPECIAL SIGN 7

SPECIAL SIGN 8

SPECIAL SIGN 9
SOIL EROSION AND SEDIMENTATION CONTROL

NOTES:

1. The design of the pedestrian culvert is based on the current Michigan DOT specifications for erosion and sediment control. See Subsection 106.08(D) of the standard specifications for construction.

2. When excavations are made, the area shall be backfilled with "backfill, structure, CIP".

3. Joint fill and joint materials are included in the respective contract items for furnishing culvert materials.

4. The contractor is responsible to avoid box culvert excavation when drilling holes for mount of the electrical conduit, fencing, and aesthetic treatment supports.

5. Fibre optic lines shall remain. Contractor to temporarily support the fibre optic lines while excavating and placing culvert. Once culvert is in place, fibre optic owner will place the lines inside split steel conduit.

6. The railroad will permit the contractor to伦理 on the maintenance or repair on the north side of the tracks for transporting materials and equipment to the site with access to lake shore (area located 1 mile to the south) and to the boat launch. The rail will be supported on the existing bridge structure.
FIBER OPTIC CABLE OVER CULVERT DETAIL

- Steel Protection Pipe (Typ)
- 22.5 Deg to 45 Deg Bend in Steel Protection Pipe
- Fence, Protective, Special
- Place 8" above top of pipe
- Place 8" above top of pipe
- Steel Pipe placed inside split ex fiber optic cable
- 7050 W. SAGINAW HWY, SUITE 200
  LANSING, MI 48917
  P (517) 272-9835  |  F (517) 272-9836

- Box Precast Conc Box, 14' foot by 12' foot, modified
- Place 8" above top of protective pipe
- Place 8" above top of protective pipe
- 35'-0" (limits of fence, protective, special)
AESTHETIC TREATMENT DETAILS

CITY OF ANN ARBOR PRS & WASHTENAW COUNTY PRC
BARTON/BANDEMER PARK PEDESTRIAN TUNNEL PROJECT

JAH
WASHTENAW
CITY OF ANN ARBOR
NAD83
NAVD88

7050 W. SAGINAW HWY, SUITE 200
LANSING, MI 48917
P (517) 272-9835  |  F (517) 272-9836

SHEET 49 OF 80

VIEW A-A

SOUTH ELEVATION
(LOOKING NORTH)

MISCELLANEOUS QUANTITIES

<table>
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<th>Unit</th>
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ORNAMENTAL ALUMINUM FENCE, 72 INCH (TYP)

LIGHT FIXTURE TYPE A (SEE LIGHTING PLANS)

PROCE W/ HEMMED EDGES (TYP)

DOWELS PER PIECE; INSTALL CAP

1'-6"± x 4'-0"± x 3"± CAP STONE W/ (2)

FLASHING W/ HEMMED EDGES (TYP)

ART PANEL (OWNER SUPPLIED)

LIGHT FIXTURE TYPE A (SEE LIGHTING PLANS)

PRECAST APRON STONE (TYP)

SPLIT FIELD STONE (TYP)

LIMESTONE (TYP)

INDIANA LIMESTONE (TYP)

DECO CONCRETE, 6 INCH, SHARED USE PATH,

AGGREGATE, TUNNEL

THE STONE FACADE.

GRADE TO SUPPORT 8" BELOW FINISHED
CMU STEPPED UP TO 9"

THE STONE FACADE.

GRADE TO SUPPORT 8" BELOW FINISHED
CMU STEPPED UP TO 9"

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THE STONE FACADE.

GRADE TO SUPPORT 8" BELOW FINISHED
CMU STEPPED UP TO 9"
Lincoln Plate Detail Elevation

Stone ledge, plates, and anchors are symmetrical across culvert centerline.

**Base Detail**
- Precast concrete windowwall
- Field stone, grout all voids behind, solid
- Masonry ties anchored to Precast: 1" x 4" OC x Vert & 2" x 4" OC x Horiz

**Cap Detail**
- Precast concrete windowwall
- Field stone, grout all voids behind, solid
- Masonry ties anchored to Precast: 1" x 4" OC x Vert & 2" x 4" OC x Horiz

**Section A-A**
- Precast concrete windowwall
- Field stone, grout all voids behind, solid
- Masonry ties anchored to Precast: 1" x 4" OC x Vert & 2" x 4" OC x Horiz
- Anchor bolts per elevation

**Lintel Detail**
- Precast concrete headwall
- 3" thick steel plate, per elevation
- Masonry ties anchored to Precast: 1" x 4" OC x Vert & 2" x 4" OC x Horiz
- Stone anchors (2) per piece, minimum

**Jamb Detail**
- Precast concrete headwall
- Precast concrete culvert
- Stone anchors (2) per piece, at bed joint

**Notes:**
- Notch back of stone as required by steel, plate, and anchors.
- All steel is to be galvanized and powder coated black.

---

**General Notes:**
- All dimensions are in feet and inches.
- Precast sections are anchored to masonry ties.
- Steel is to be galvanized and powder coated black.
- Stone anchors are placed as required.

---

**Scale:**
- Hori. (ft) = 4"
- Vert. (ft) = 4"
ELEVATION INSIDE TUNNEL - SHOWING PANEL SUPPORTS

COORDINATE DETAILS SO CULVERT JOINTS ARE LOCATED AT JOINTS BETWEEN ADJACENT PANELS.

COORDINATE DETAILS SO PANEL SUPPORTS ARE INSTALL AT JOINTS BETWEEN ADJACENT PANELS.

ALIGN PANEL JOINTS WITH CULVERT JOINTS AND PATHWAY JOINTS.

15 DECORATIVE PANELS TO BE INSTALLED.

MISCELLANEOUS QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 0001</td>
<td>100000</td>
</tr>
</tbody>
</table>

DETAIL A

SECTION THRU WALL

DETAIL B

DETAIL C
**PEDESTRIAN TIMBER BRIDGE DETAILS**

**CITY OF ANN ARBOR PRS & WASHTENAW COUNTY PRC**

**BARTON/BANDEMER PARK PEDESTRIAN TUNNEL PROJECT**

4/12/2024

**JAH**

WASHTENAW
CITY OF ANN ARBOR

NAD83
NAVD88

7050 W. SAGINAW HWY, SUITE 200
LANSING, MI 48917

P (517) 272-9835  |  F (517) 272-9836

---

**TYPICAL BRIDGE SECTION**

**MISCELLANEOUS QUANTITIES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>1879</td>
</tr>
<tr>
<td>2</td>
<td>1879</td>
</tr>
<tr>
<td>1</td>
<td>1879</td>
</tr>
<tr>
<td>4</td>
<td>1879</td>
</tr>
</tbody>
</table>

**NOTES:**

- All timber (except that noted as composite) shall be Southern Yellow Pine #2 or better and pressure treated to 0.23pcf (ground contact rated) with MCA.
- All composite material shall be treated timber tech or approved equivalent. Coordinate color with engineer.
- All steel fasteners shall be hot-dipped galvanized. Countersink all screw connections.
- Bent plates shall be hot-dipped galvanized after bending and drilling of holes.
- Riprap shall be covered with wooden framing. Contractor shall provide shop drawings.

---

**BRIDGE ELEVATION**

**PLAN**

**Section Details**

**Railing (Typ)**

- 2" x 6" Wood
- 4" x 12" Conc Decking
- 4" x 12" Conc Cap Plate
- 1" x 8" Composite Plate
- 12'-0" End Joists

**Prop & Const (Typ)**

- 2" x 6" Conc Kick Plate
- 4" x 12" Conc Prop Bridge
- 4" x 12" Conc Prop Stream

**Substructure, Conc, High Performance Steel, Epoxy Coated Aggregate, 6A (All)**

**Aggregates**

- Riprap
- Cobblestone

**Notes:**

- Contractor shall provide shop drawings.
- All composite material shall be Trex, Timber Tech or approved equivalent. Coordinate color with engineer.
- All steel fasteners shall be hot-dipped galvanized. Countersink all screw connections.
- Bent plates shall be hot-dipped galvanized after bending and drilling of holes.
- Riprap shall be covered with wooden framing. Contractor shall provide shop drawings.
## Riser Diagram

### Panel Board Schedule

<table>
<thead>
<tr>
<th>DP</th>
<th>LOAD</th>
<th>DESCRIPTION</th>
<th>PANEL TYPE</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>120V</td>
<td>BALLASTS</td>
<td>DP</td>
<td>Location 1</td>
</tr>
<tr>
<td>B</td>
<td>120V</td>
<td>TUNNEL LIGHTS</td>
<td>DP</td>
<td>Location 2</td>
</tr>
<tr>
<td>C</td>
<td>120V</td>
<td>TUNNEL LIGHTS</td>
<td>DP</td>
<td>Location 3</td>
</tr>
<tr>
<td>D</td>
<td>120V</td>
<td>TUNNEL LIGHTS</td>
<td>DP</td>
<td>Location 4</td>
</tr>
</tbody>
</table>

### New Panel "LCP"

- **Panel Type:** LCP
- **Panel Number:** 002
- **Load Type:** DP
- **Description:** Location Details

### Luminaire Schedule

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LUMINAIRE</th>
<th>MANUFACTURER</th>
<th>MODEL NUMBER</th>
<th>SHAPE</th>
<th>WALL MOUNTED</th>
<th>INPUT MATCH</th>
<th>DESCRIPTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>V50</td>
<td>SYLVANIA</td>
<td>1-light 8&quot; 50W</td>
<td>VERT</td>
<td>YES</td>
<td>120V</td>
<td>24V</td>
<td>SF</td>
</tr>
<tr>
<td>B</td>
<td>V50</td>
<td>SYLVANIA</td>
<td>1-light 8&quot; 50W</td>
<td>HORIZ</td>
<td>YES</td>
<td>120V</td>
<td>24V</td>
<td>SF</td>
</tr>
<tr>
<td>C</td>
<td>V50</td>
<td>SYLVANIA</td>
<td>1-light 8&quot; 50W</td>
<td>VERT</td>
<td>YES</td>
<td>120V</td>
<td>24V</td>
<td>SF</td>
</tr>
<tr>
<td>D</td>
<td>V50</td>
<td>SYLVANIA</td>
<td>1-light 8&quot; 50W</td>
<td>HORIZ</td>
<td>YES</td>
<td>120V</td>
<td>24V</td>
<td>SF</td>
</tr>
</tbody>
</table>

### Service Connection

- **Service size:** 10 AWG
- **Service entry:** Transformer Utility
- **Service type:** 10 AWG

---

**Notation:**
- DP: Distribution Panel
- LCP: Lighting Control Panel
- VERT: Vertical Mount
- HORIZ: Horizontal Mount
- SF: Service Feeder
# Soil Boring Data

## City of Ann Arbor PRS & Washtenaw County PRC

### Barton/Bandemer Park Pedestrian Tunnel Project

- **Date:** 4/12/2024
- **JAH:**
- **WASHTENAW CITY OF ANN ARBOR NAD83 NAVD88**
- **7050 W. SAGINAW HWY, SUITE 200 LANSING, MI 48917**

- **P:** (517) 272-9835
- **F:** (517) 272-9836

---

### Sheet Data

- **Date:**
- **CADD:**
- **PROJ MGR:**
- **ENG:**
- **PROJ NUMBER:**
- **REVISIONS:**

### County/City/Village/Township

- **V:**
- **H:**

### Scale

- **HORIZ DATUM:**
- **VERT DATUM:**

### Soil Descriptions

<table>
<thead>
<tr>
<th>Depth (Ft)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 0.5</td>
<td>Fine to Coarse CLAYEY SAND - Occasional Topsoil Layers - Dark Gray - Moist to Wet - Very Loose (SC)</td>
</tr>
<tr>
<td>0.5 - 1.5</td>
<td>LEAN CLAY - Trace Root Hairs - Brownish Gray - Soft (CL)</td>
</tr>
<tr>
<td>1.5 - 2.5</td>
<td>LEAN CLAY - Occasional Wet Fine Silty Sand Layers - Gray - Stiff to Hard (CL)</td>
</tr>
<tr>
<td>2.5 - 3.5</td>
<td>Fine to Medium SILTY SAND - Occasional Gravel Layer after 30' - Grey - Wet - Dense (SM)</td>
</tr>
</tbody>
</table>

### Groundwater & Backfill Information

- **Groundwater:**
- **Backfill Method:**

---

### Boring Information

- **Project Name:** Barton-Bandemer Tunnel
- **Project Number:** 080118.00
- **Client:** Collinars Engineering & Design
- **Project Location:** Ann Arbor, Washtenaw County, Michigan

- **Date Started:** 1/19/23
- **Completed:** 1/19/23
- **Boring Method:** Solid stem Auger
- **Driller:** RM
- **Rig No.:** 531 (CME55LCX)

### Boring Depth

- **50 Feet**

---

**Notes:**

1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. Latitude and longitude obtained with a Geode GNS2 Submeter GPS unit. Estimated ground surface elevation is based on available project drawings.

---

**Backfill Method:** Barite Chips

---

**Groundwater & Backfill Information**

- **Groundwater:**
- **Backfill Method:** Barite Chips

---

**Notes:**

1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.

2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

3. Latitude and longitude obtained with a Geode GNS2 Submeter GPS unit. Estimated ground surface elevation is based on available project drawings.
## Soil Boring Data

**Project Name:** Barton-Bendermier Tunnel  
**Client:** Colliers Engineering & Design  
**Project Number:** 090118.00  
**Project Location:** Ann Arbor, Washtenaw County, Michigan

### Soil Boring Log

**Date Started:** 3/21/22  
**Completed:** 3/21/22  
**Boring Method:** HSA 0' to 50', Fluid 22' to 50'  
**Driller:** RM  
**Rig No.:** 31 (CMESLOCX)  
**Logged By:** KJT  
**Checked By:** PDF

**Profile Description**

- **Location:** 42°30'29"  
- **Longitude:** 83°27'00"  
- **Station:** Approx S 14+4  
- **Elevation:** 756.9 feet  
- **Horiz Datum:** NAD83  
- **Vert Datum:** NAVD88

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Material Description</th>
</tr>
</thead>
</table>
| 0.0 - 2.5 | Fine to Coarse CLAYEY SAND  
- Occasional Sandy Gravel Layers  
- Dark Gray - Mixed to Weak - Very Weak Clay  |
| 2.5 - 7.0 | LEAN CLAY - Occasional Clayey Sand  
- Good to Very Good  
- Light Gray - Soft to Hard  (CL)  |
| 7.0 - 12.0 | LEAN CLAY -Brownish Gray - Silt  
- Soft to Hard  (CL)  |
| 12.0 - 15.0 | LEAN CLAY - Occasional to Frequent Fine Silty Sand  
- Layers between 11.5 and 16 feet  
- Gray - Soft to Hard  (CL)  |
| 15.0 - 20.0 | Fine to Medium SILTY SAND  
- Occasional Gravel Layers after 30 feet  
- Gray - Weak - Dense  (SM)  |

**Groundwater & Sacrificial Information**

- **DURING BORING:** 2.5'  
- **AT END OF BORING:** 1.0'  

**Backfill Method:** Note 3

**Notes:**
1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbols profile are only for visualization purposes and do not necessarily represent the in-situ colors encountered.
3. Boronite backfilled with cement bentonite grout from 50 feet to 3 feet below the ground surface and auger cut-off above 5 feet to the ground surface.
4. Latitude and longitude obtained with a GPSE DGN2 Total Station GPS unit. Estimated ground surface.
5. Temporary piezometer installed at offset location.

**Remarks:**
- Boronite bores in bottom-of-aurger.
- Off-set bores 5 feet south, drilled to 37.5 feet below ground surface.
- Boronite filled with cement bentonite grout.
- Boronite sampling at 22.5 feet.

---

**Profile Description**

- **Location:** 42°30'29"  
- **Longitude:** 83°27'00"  
- **Station:** Approx S 14+1  
- **Elevation:** 756.9 feet  
- **Sample Number:** 801  
- **Sample Name:** SM  
- **Sample Results:** DRY DENSITY: 0.92  
- **Moisture & Atterberg Limits:**
  - W repellent:
  - S repellent:
  - M repellent:
  - M repellent:
  - FC:
  - WL:
  - Upper Softened Limits:
  - Lower Softened Limits:
  - Strength:

**Remarks:**
- Boronite bores in bottom-of-auger.
- Off-set bores 5 feet south, drilled to 37.5 feet below ground surface.
- Boronite filled with cement bentonite grout.
- Boronite sampling at 22.5 feet.
BORING B9

PROJECT NAME: Barton-Banedmer Tunnel
PROJECT NUMBER: 080118.00
PROJECT LOCATION: Ann Arbor, Washtenaw County, Michigan

DATE STARTED: 1/18/23
COMPLETED: 1/18/23
BORING METHOD: Hollow-stem Augers
DRILLER: RM
RIG NO.: 531 (RM/CLX)
LOGGED BY: TAG
CHECKED BY: STR

SOIL BORING DATA

CITY OF ANN ARBOR
PRC & WASHTENAW COUNTY PRC
BARTON/BANEDMER PARK PEDESTRIAN TUNNEL PROJECT
4/12/2024

7050 W. SAGINAW HWY, SUITE 200
LANSING, MI 48917
P (517) 272-9835 | F (517) 272-9836

REMARKS

Cont. on next page.
## BASE AND POLE DATA TABLE

<table>
<thead>
<tr>
<th>LIGHT STANDARD</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>PERCH POLES (MAX)</th>
<th>ALUM POLES (MAX)</th>
<th>POLE DIAMETER</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 FT NOMINAL MOUNTING HEIGHT (UNLESS OTHERWISE SPECIFIED)</td>
<td>11&quot;</td>
<td>7½&quot;</td>
<td>2&quot;</td>
<td>1½&quot;</td>
<td>4&quot;</td>
<td>2&quot;</td>
<td>3½&quot;</td>
<td>9½&quot;</td>
<td>12½&quot;</td>
</tr>
<tr>
<td>90 FT NOMINAL MOUNTING HEIGHT WITH 3.0 MT IMMERSION</td>
<td>11&quot;</td>
<td>7½&quot;</td>
<td>2&quot;</td>
<td>1½&quot;</td>
<td>4&quot;</td>
<td>2&quot;</td>
<td>3½&quot;</td>
<td>9½&quot;</td>
<td>12½&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
- **THE 11" BOL RED CIRCLE SHALL APPLY FOR BOTH THE POLE TO TRANSFORMER BASE AND FOR THE TRANSFORMER BASE TO FOUNDATION.**
- **DIMENSIONS CORRESPOND TO ALUMINUM.**
- **DATA CORRESPOND TO ALUMINUM CONCRETE.**
- **HOR{| V= | H= | SHEET| DATE | CADD | PROJ MGR | ENG | PROJ NUMBER | REVISIONS: | COUNTY | CITY/VILLAGE/TOWNSHIP | SCALE | HORIZ DATUM | VERT DATUM |

### MATERIALS TABLE (ANCHOR BASE)

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>SPECIFICATION</th>
<th>DIMENSIONS</th>
<th>QUANTITY (PER FOUNDATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCHOR BOLTS</td>
<td>MDT 80.14</td>
<td>DETERMINED BY LIGHT STANDARD CHART</td>
<td>4</td>
</tr>
<tr>
<td>ANCHOR NUTS</td>
<td>MDT 80.14</td>
<td>DETERMINED BY ANCHOR BOLT DIAMETER</td>
<td>8</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
</tbody>
</table>

### MATERIALS TABLE (FRANGIBLE BASE)

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>SPECIFICATION</th>
<th>DIMENSIONS</th>
<th>QUANTITY (PER FOUNDATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCHOR BOLTS</td>
<td>MDT 80.14</td>
<td>DETERMINED BY LIGHT STANDARD CHART</td>
<td>4</td>
</tr>
<tr>
<td>ANCHOR NUTS</td>
<td>MDT 80.14</td>
<td>DETERMINED BY ANCHOR BOLT DIAMETER</td>
<td>4</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.14</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>LOCK WASHERS</td>
<td>AHS B10.11</td>
<td>½&quot; THICK</td>
<td>8</td>
</tr>
<tr>
<td>HIGH STRENGTH BOLTS</td>
<td>MDT 80.07</td>
<td>LENGTH DETERMINED BY THE CONTRACTOR</td>
<td>4</td>
</tr>
<tr>
<td>CONNECTING NUTS</td>
<td>MDT 80.07</td>
<td>DETERMINED BY HIGH STRENGTH BOLT DIAMETER</td>
<td>4</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.16</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>PLATE WASHERS</td>
<td>MDT 80.16</td>
<td>2½&quot; x 0.125 x 0.125 x 0.125 x 0.125</td>
<td>(8 REQUIRED)</td>
</tr>
<tr>
<td>EXTRUDED TRANSCmitter BASE</td>
<td>MDT QA 95</td>
<td>ACCESS DOOR OPENING: 8½ x 8½</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTES:**
- IF LIGHT STANDARDS BASE PLATE HAS SLOTTED HOLES, PLATE WASHERS ARE REQUIRED IN 12 of CIRCULAR WASHERS AND MUST COVER ENTIRE BOLT.
- ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATE WASHERS MUST BE HIGH STRENGTH CHECKS ACCORDING TO AASHTO TL-3.
## Anchor Bolt Assembly Dimensions

<table>
<thead>
<tr>
<th>Light Standard Anchor Bolt Assembly</th>
<th>Bolt Circle Diameter &quot;n&quot;</th>
<th>Anchor Bolt Diameter &quot;n&quot;</th>
<th>&quot;h&quot;</th>
<th>&quot;l&quot;</th>
<th>Stud Production &quot;n&quot;</th>
<th>Stud Length &quot;l&quot;</th>
<th>&quot;h&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot;</td>
<td>1.25&quot; (P)</td>
<td>1/2&quot; (A)</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
<td>25&quot;</td>
<td>5&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>40&quot;</td>
<td>1.25&quot; (P)</td>
<td>1/2&quot; (A)</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
<td>25&quot;</td>
<td>5&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>45&quot;</td>
<td>1.25&quot; (P)</td>
<td>1/2&quot; (A)</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
<td>25&quot;</td>
<td>5&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

* Up to 10 single or double bracket arm

** Up to 17 single or double bracket arm

Anchor bolts are required:
- 1/2" dia. + 1/2" threaded rod and 9" dia. x 1" stud with 4 nuts, 4 washers, and one coupling.

(a) Dimension corresponds to aluminum.
(b) Dimension corresponds to steel.

---

**Notes:**
- Die strip - 2" minimum
- Letters and numbers shall be 1/2" minimum on 1/2" maximum height. Date shall be year that structure was completed.

---

**Detail B:**

- Cutouts made from square box, or octagonal box stock with structural capacity determined in tension equal to 70% of the specified field strength and 90% of the specified ultimate strength of the threaded rod and stud used.
- 9" dia. threaded rod

**Light Standard Anchor Bolt Assembly Diagram:**

![Diagram of anchor bolt assembly](image)

**Molding Details:**

![Molding diagram](image)

---

**Special Details:**

- City of Ann Arbor & Washtenaw County
- Barton/Banemar Park Pedestrian Tunnel Project
- 4/12/2024