ADDENDUM No. 1

ITB No. 4655

South Industrial Highway Concrete Pavement Repairs

Bids Due: February 16, 2021 at 10:00AM (Local Time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes one hundred twenty-nine (129) pages.**

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

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

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

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

I. CORRECTIONS/ADDITIONS/DELETIONS

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

Section/Page(s)	Change
Pre-Bid Conference/NP-1	Pre-Bid Conference Summary and Attendance Record/ Sign-In Sheet and Agenda pages Addendum-1-5 thru 10.
Bid Forms/BF-1 to 10	Base Bid Forms; replace with pages Addendum-1-11 thru 15. Revised to add new pay items for _Project Supervision, Max $75,000.00 and _Certified Payroll and Compliance Reporting, respective line numbers 15 land 20. Previous line numbers and correlating pay items changed as a result of these additions.

Standard Specifications/SS-1	Standard Specifications for project; replace with page Addendum-1-16. Revised to remove reference to City of Ann Arbor Public Services Department Standard Specifications.
Detailed Specifications/DS-1 to 2	Detailed Specification for Project Schedule; replace with pages Addendum-1-17 thru 19. Revised the document in its entirety including but not limited to the start, completion and final acceptance of restoration work dates; added other pertinent contract milestone dates; and added information related to liquidated damages.
Detailed Specifications/DS-12 to 14	Detailed Specification for Audiovisual Recording; replace with pages Addendum-1-20 to 22. Revised to remove any reference to the document being a special provision; added a new vendor, Construction Video Media; reformatted/corrected section/paragraph numbering.
Detailed Specifications/DS-19	Detailed Specification for Grading, Sidewalks, Sidewalk Ramps, and Driveways; replace with page Addendum-1-23. Revised to remove any reference to the document being a special provision.
Detailed Specifications/DS-26	Detailed Specification for Concrete Driveway Opening; replace with page Addendum-1-24. Revised to show applicable pay item and pay unit.
Detailed Specifications/DS-27 to 29	Detailed Specification for Concrete Sidewalk, ADA Ramps, and Driveway Approaches; replace with pages Addendum-1-25 to 27. Revised to remove any reference to the document being a special provision and replaced reference to the “Special Provision entitled “Detectable Warning Tiles”” with the “Detailed Specification for Detectable Warning Surface”.
Detailed Specifications/DS-30 to 31	Special Provision for Detectable Warning Surface; replace with pages Addendum-1-28 to 29. Renamed document to Detailed Specification for Detectable Warning Surface. All content remains unchanged.
Detailed Specifications/DS-35 to 37	Detailed Specification for Audible Message Devices; replace with pages Addendum-1-30 to 32. Revised the “Description” section to replace reference to the Special Provision for “Maintenance of Traffic” with the Detailed Specification for Maintenance of Traffic.

Detailed Specifications/DS-38 to 42	Detailed Specification for Maintenance of Traffic; replace with pages Addendum-1-33 to 37. Revised the “Measurement and Payment” section to correct the pay units for the pay items “Audible Message Device, Temp” and “Pedestrian Ramp, Temp” from “Foot” to “Each”.
Detailed Specifications/DS-43 to 44	Detailed Specification for Temporary Detectable Warning Surface; replace with pages Addendum-1-38 to 39. Revised the “Submittals” section to remove any reference to the document being a special provision.
APPENDIX	Insert Michigan Department of Transportation (MDOT) Special Provision for Temporary Pedestrian Ramp pages Addendum-1-40 to 41.
APPENDIX	Insert MDOT Special Provision for Temporary Pedestrian Type II Barricade pages Addendum-1-42 to 43.
APPENDIX	Insert MDOT Special Provision for Temporary Pedestrian Type II Channelizer pages Addendum-1-44 to 45.
APPENDIX	Insert MDOT Special Provision for Temporary Special Pavement Markings (Transverse, Legend, and Symbol) pages Addendum-1-46 to 47.
APPENDIX	Insert MDOT Supplemental Specification for Errata to the 2012 Standard Specifications pages Addendum-1-48 to 77.
APPENDIX	Geotechnical Information; insert pages Addendum-1-74 thru 94. Added to include the soil boring logs for Barrington Place, Brampton Court, Dicken Drive, Dunmore Road, Greenview Drive, Kent Street, Las Vegas Drive, Mershon Drive, Morehead Court, Norfolk Avenue, Runnymede Boulevard, Tudor Drive, Waltham Drive, Winsted Boulevard and Court.
APPENDIX	Insert General Decision Number: MI20210001 01/01/2021 pages Addendum-1-95 thru 129.

II. QUESTIONS AND ANSWERS

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

Question 1: Will the pay item “Lane Tie, Epoxy Anchored” be paid at ALL instances of required lane tie installation? (As an example: If portions of Phase 1 are broken up between the center lane and the east lane for constructability and logistical reasons, would the resulting required lane ties at the construction joint between bays be incidental to other pay items or would they be paid for separately?)

Answer 1: The intent is to pay for the installation of lane ties only when they need to be drilled and anchored into an existing or previously poured concrete pavement slab. Lane ties placed on chairs or inserted mechanically in conjunction with concrete placement will not be paid separately.

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

PRE-BID CONFERENCE SUMMARY

South Industrial Highway Concrete Pavement Repair Project
(ITB No. 4655; City File No. 2020-024)

February 2, 2021
10:00 a.m.
Virtual Meeting via Microsoft® Teams

I. Introductions

The City's meeting facilitator and project manager assisting on this project, David Dykman, (herein "the City") called the Pre-Bid Conference to order at 10:03 a.m. and asked for introductions of all in attendance. See meeting sign sheet (attached) for list of meeting attendees. It was noted that this virtual meeting was being recorded.

II. General

The City gave a brief description of the proposed work, which included the below project overview information.

a. Project Overview: Transverse and longitudinal concrete pavement joint repairs; areas of full depth concrete pavement/curb removal and replacement; aggregate base corrections and repairs, as required; joint sawing and sealing, joint resealing and crack sealing; ADA ramp replacement; minor drainage work; slope restoration; and pavement markings.

The City gave attention to the pertinent dates shown below related to bid questions and schedule and the anticipated approval from City Council to award the contract.

b. Bid Schedule and Contract Award
   i. Bid Questions Due: Thursday, February 4, 2021, by 5:00 p.m.
      - Specification/Scope of Work questions emailed to Theresa Bridges (tbridges@a2gov.org)
      - Bid Process and Compliance questions emailed to Colin Spencer (cspencer@a2gov.org)
   ii. Bid Opening: Tuesday, February 16, 2021, at 10:00 a.m. (Local Time)
   iii. City Council Approval to Award Contract: April 5, 2021

The City gave attention to the bid documents listed below. It noted that the bid references both City of Ann Arbor and MDOT Standard Specifications and that reference to the former may be eliminated. It also noted that pay items and/or detailed specifications related to certified payroll and prevailing wage compliance and project supervision were mistakenly omitted from the bid and will be required of the contract and will be addressed for inclusion in an addendum together with the applicable Davis-Bacon wage decision and MDOT Supplemental Specifications and Special Provisions that were also omitted. Attention was given to the Notice to Bidders for Utility Coordination and the need to coordinate with the City's Sign and Signal Unit regarding modifications to traffic signals in the project corridor as they relate to the construction phases and necessary staging. Lastly, the City referred to the contract declaration/compliance forms at the end of the bid document and informed that these must be competed and submitted as part of the bid and that bids failing to provide these forms will be consider incomplete and not accepted.

c. Bid Documents
   i. Standard Specifications – City of Ann Arbor Public Services Department Standard Specifications and Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction

ii. City of Ann Arbor Detailed Specifications (prevailing wage & certified payrolls, project supervision) and Notice(s) to Bidders (utility coordination; City's Signs & Signals unit)
iii. MDOT Special Provisions and Supplemental Specifications
iv. Other (contract compliance forms)

d. Plans

The City gave attention to the information below contained in the Detailed Specification for Progress Schedule as shown below. It was noted that the start and completion dates could change, and that amount for liquidated damages may change from being in accordance with MDOT Standard Specifications to one specified in a revised version of this detailed specification. The City briefly discussed the construction sequencing (part width) and the maintenance of traffic/detour route together with the special concerns noted below. It also gave attention to the City Idling Ordinance contained in the bid document and the careful need for close observance.

III. Construction

a. Progress Schedule
   i. Start Date: No sooner than April 15, 2021 indicated in specifications. City Council award anticipated April 5, 2021. Start Date will more likely be early May.
   ii. Completion Date: July 24, 2021, with exception to final acceptance of restoration, which shall be by September 18, 2021 (dates indicated in specifications). Due to start date delay, completion days will likely be adjusted accordingly.
   iii. Working Hours: 7:00 a.m. to 8:00 p.m., Monday through Saturday; no work on Sundays (unless authorized).
   iv. Holidays (Memorial Day & Independence Day)
   v. Liquidated damages per MDOT Standard Specifications

b. Scope of Work and Construction Sequencing: Phasing outlined in MOT.

c. Maintenance of Traffic: One-way southbound traffic maintained whole project. Driveways to remain accessible unless coordinated with property owner.

d. Special Concerns (local traffic access, pedestrian and cyclist mobility, tree & street lighting protection, structure cleaning…)

e. City Idling Ordinance

The City noted that at least one addendum will be issued that summarizes this meeting together with items mentioned that need to be addressed as a part of it. The City will work to issue an addendum by Friday, February 5 or Monday, February 8, 2021.

IV. Addenda

V. Questions and Other Items

1. What is the Engineer's Estimate? *Approximately $1.7 Million.*
2. Will geotechnical and other typical testing measures be provided by the City? *The City will provide quality assurance (QA) testing for concrete and testing for other construction materials and soil density, as required. The contractor will be responsible for concrete quality control (QC) testing.*
3. Will the City provide construction layout, if needed? *Yes, the City will provide any required construction staking for layout or other needs.*

PRE-BID CONFERENCE SUMMARY

South Industrial Highway Concrete Pavement Repair Project
(ITB No. 4655; City File No. 2020-024)

4. Does the City have an idea of the amount for liquidated damages? *Liquidated damages will be assessed in the amount of $1,000.00 per calendar day in accordance with the revised Detailed Specification for Progress Schedule.*
5. Regarding mobility for cyclists, will maintenance of a separate bike lane facility be required in the operational traffic lane? *No, a separate bike lane will not be required for cyclist mobility. Cyclists will share the road in the vehicular traffic lanes(s) required for operation as part of the project as shown on the maintenance of traffic plan sheets.*
6. Could the City provide an explanation for the pay item Audible Message Device, Temp; what exactly is the device? *The City of Ann Arbor Detailed Specification for Audible Message Devices lists two (2) types of devices that are approved for use; Empco-Lite Model 400ADA (https://empco-lite.com/barricade/ADA-Lite.htm) and MDI Worldwide SpeakMaster 500 (https://www.mditrafficcontrol.com/ada_speakmaster). These devices are intended for use in Temporary Pedestrian Alternate Routes (TPAR) to assist pedestrians with visual impairments.*
7. What grade of concrete is expected to be used for patch/repair work? *The City expects Concrete Grade P1 to be used for the concrete pavement repair work with exception to filling in gapped driveways and intersections for which it will likely require the use Concrete Grade P-NC.*
8. Does the City anticipate any use of Concrete Grade P1M? *No, the City does not expect to use this grade of concrete.*
9. Is the bid to be submitted in person and not electronically? *Page IB-2 of the bid document addresses bid submission. Bids are not to be submitted electronically.*
10. Will bids be opened publicly? *The bid opening will be public and occur in the City Hall main entrance lobby with those desiring to attend being able to view from the nearest vestibule (north or south side entrance).*
11. Are temporary traffic control signs to be post driven? *Yes, unless there are conflicts with existing underground utilities or other objects.*
12. Will the City provide layout for temporary traffic control devices? *The City may be able to assist with this; however, it is unlikely due to staffing. Bid prices should not factor in the expectation the City will provide this service.*
13. Can the City provide attendees with a copy of the pre-bid conference agenda? *The City will provide the agenda as part of the addendum that includes pre-bid conference summary.*

Contact Information:

Theresa Bridges
Project Manager
Phone: (734) 794-6410 ext. 43672
Fax: (734) 994-1744
E-mail: tbridges@a2gov.org

PRE-BID CONFERENCE SIGN-IN SHEET

South Industrial Highway Concrete Pavement Repair Project (ITB No. 4655)

02/02/2021

NAME	REPRESENTING	MAILING ADDRESS	TELEPHONE	E-MAIL
David Dykman Project Manager	City of Ann Arbor - Engineering	Address: 301 E. Huron Street, P.O. Box 8647 City, State: Ann Arbor, MI Zip: 48107-8647	Office: 734-794-6410, ext. 43685 Mobile: _____ Fax: 734-994-1744	ddykman@a2gov.org
Theresa Bridges Project Manager	City of Ann Arbor - Engineering	Address: 301 E. Huron Street, P.O. Box 8647 City, State: Ann Arbor, MI Zip: 48107-8647	Office: 734-794-6410, ext. 43672 Mobile: _____ Fax: 734-994-1744	tbridges@a2gov.org
John Senkowski	Doan Construction	Address: 3670 Carpenter Road City, State: Ypsilanti, MI Zip: 48197	Office: 734-971-1270 Mobile: _____ Fax No. _____	jsenkowski@doancompanies.com
John Niemiec	E.T. MacKenzie Company	Address: 6400 Jackson Road City, State: Ann Arbor, MI Zip: 48103	Office: 734-761-5050 Mobile: _____ Fax No. _____	jniemiec@mackenzieco.com
Rob Hallerman	Cipparrone Contracting, Inc.	Address: 30555 Southfield Road, Suite 250 City, State: Southfield, MI Zip: 48076	Office: _____ Mobile: _____ Fax No. _____	RobertH@cipparrone.com
Al Piggin	Century Cement	Address: 12600 Sibley Road City, State: Riverview, MI Zip: 48193	Office: 734-284-8770 Mobile: _____ Fax No. 734-284-9790	centurycementco@sbcglobal.net
		Address: _____ City, State: _____ Zip: _____	Office: _____ Mobile: _____ Fax No. _____	
		Address: _____ City, State: _____ Zip: _____	Office: _____ Mobile: _____ Fax No. _____	

Addendum-1-8

PRE-BID CONFERNENCE

South Industrial Highway Concrete Pavement Repair Project
(ITB No. 4655; City File No. 2020-024)

February 2, 2021
10:00 a.m.
Virtual Meeting via Microsoft® Teams

AGENDA

I. Introductions

II. General

a. Project Overview: Transverse and longitudinal concrete pavement joint repairs; areas of full depth concrete pavement/curb removal and replacement; aggregate base corrections and repairs, as required; joint sawing and sealing, joint resealing and crack sealing; ADA ramp replacement; minor drainage work; slope restoration; and pavement markings.

b. Bid Schedule and Contract Award
   i. Bid Questions Due: Thursday, February 4, 2021, by 5:00 p.m.
      - Specification/Scope of Work questions emailed to Theresa Bridges (tbridges@a2gov.org)
      - Bid Process and Compliance questions emailed to Colin Spencer (cspencer@a2gov.org)
   ii. Bid Opening: Tuesday, February 16, 2021, at 10:00 a.m. (Local Time)
   iii. City Council Approval to Award Contract: April 5, 2021

c. Bid Documents
   i. Standard Specifications – City of Ann Arbor Public Services Department Standard Specifications and Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction
   ii. City of Ann Arbor Detailed Specifications (prevailing wage & certified payrolls, project supervision) and Notice(s) to Bidders (utility coordination; city's Signs & Signals unit)
   iii. MDOT Special Provisions and Supplemental Specifications
   iv. Other (contract compliance forms)

d. Plans

III. Construction

a. Progress Schedule
   i. Start Date: No sooner than April 15, 2021.
   ii. Completion Date: July 24, 2021, with exception to final acceptance of restoration, which shall be by September 18, 2021.
   iii. Working Hours (7:00 a.m. to 8:00 p.m., Monday through Saturday; no work on Sunday's unless authorized)
   iv. Holidays (Memorial Day & Independence Day)
   v. Liquidated damages per MDOT Standard Specifications

b. Scope of Work and Construction Sequencing

c. Maintenance of Traffic

d. Special Concerns (local traffic access, pedestrian and cyclist mobility, tree & street lighting protection, structure cleaning…)

e. City Idling Ordinance

PRE-BID CONFERNENCE

South Industrial Highway Concrete Pavement Repair Project
(ITB No. 4655; City File No. 2020-024)

IV. Addenda

V. Questions and Other Items

Contact Information:

Theresa Bridges
Project Manager
Phone: (734) 794-6410 ext. 43672
Fax: (734) 994-1744
E-mail: tbridges@a2gov.org

BID FORM

Section 1 - Schedule of Prices

S. Industrial Highway Concrete Pavement Repairs
File No. 2020-024
Bid No. 4655

Line No.	Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
5	1047051	_Audiovisual Recording	LSUM	1.000	$	$
10	1047051	_General Conditions, Max $90,000	LSUM	1.000	$	$
15	1047051	_Project Supervision, Max $75,000	LSUM	1.000	$	$
20	1047051	_Certified Payroll Compliance and Reporting	LSUM	1.000	$	$
25	2030011	Dr Structure, Rem	Ea	2.000	$	$
30	2030015	Sewer, Rem, Less than 24 inch	Ft	20.000	$	$
35	2047001	_Curb, Gutter, and Curb and Gutter, Any Type, Rem	Ft	14.000	$	$
40	2047011	_Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Syd	79.000	$	$
45	2050023	Granular Material, Cl II	Cyd	5.000	$	$
50	2057011	_Grading, Sidewalk and Sidewalk Ramp, and Driveway Approach	Syd	79.000	$	$
55	2057021	_Undercutting, Type IIA	Cyd	25.000	$	$
60	2057021	_Undercutting, Type IIB	Cyd	25.000	$	$
65	2057021	_Undercutting, Type IIC	Cyd	25.000	$	$
70	2080020	Erosion Control, Inlet Protection, Fabric Drop	Ea	53.000	$	$
75	2090001	Project Cleanup	LSUM	1.000	$	$
80	3010002	Subbase, CIP	Cyd	10.000	$	$
85	3027021	_Aggregate Base, Cl 21AA, CIP	Cyd	25.000	$	$
90	3037021	_Open-Graded Aggregate, Cl 4G, CIP	Cyd	25.000	$	$
95	3060020	Maintenance Gravel	Ton	5.000	$	$
100	4020987	Sewer, Cl IV, 12 inch, Tr Det B	Ft	20.000	$	$

TOTAL THIS PAGE $

BID FORM

Section 1 - Schedule of Prices

Line No.	Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
105	4030005	Dr Structure Cover, Adj, Case 1	Ea	90.000	$	$
110	4030200	Dr Structure, 24 inch dia	Ea	2.000	$	$
115	4030280	Dr Structure, Adj, Add Depth	Ft	5.000	$	$
120	4037050	_Dr Structure Cover, Type B, Modified	Ea	43.000	$	$
125	4037050	_Dr Structure Cover, Type K, Modified	Ea	31.000	$	$
130	4037050	_Dr Structure Cover, Type R, Modified	Ea	15.000	$	$
135	4037050	_Dr Structure, Point	Ea	10.000	$	$
140	6020200	Joint, Contraction, Cp	Ft	3744.000	$	$
145	6030005	Cement	Ton	129.000	$	$
150	6030010	Crack Sealing, Conc Pavt	Ft	1000.000	$	$
155	6030020	Joint, Contraction, Crg	Ft	4634.000	$	$
160	6030021	Joint, Expansion, Erg	Ft	280.000	$	$
165	6030023	Joint, Tied, Trg	Ft	260.000	$	$
170	6030030	Lane Tie, Epoxy Anchored	Ea	2641.000	$	$
175	6030044	Pavt Repr, Nonreinf Conc, 8 inch	Syd	12237.000	$	$
180	6030080	Pavt Repr, Rem	Syd	12237.000	$	$
185	6030090	Saw Cut, Intermediate	Ft	1500.000	$	$
190	6030095	Sawing and Sealing Longit Pavt Joints	Ft	5835.000	$	$
195	6030096	Sawing and Sealing Trans Pavt Joints	Ft	8638.000	$	$
200	6030100	Resealing Trans Joints with Hot-Poured Rubber	Ft	1000.000	$	$
					TOTAL THIS PAGE	$

BID FORM

Section 1 - Schedule of Prices

Line No.	Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
205	6030101	Resealing Longit Joints with Hot-Poured Rubber	Ft	1500.000	$	$
210	8017011	_Driveway, Nonreinf Conc, 8 inch, Modified	Syd	304.000	$	$
215	8020037	Curb and Gutter, Conc, Det F3	Ft	14.000	$	$
220	8027001	_Driveway Opening, Conc, Det M, Modified	Ft	100.000	$	$
225	8030030	Curb Ramp Opening, Conc	Ft	5.000	$	$
230	8037001	_Detectable Warning Surface, Modified	Ft	49.000	$	$
235	8037010	_Sidewalk Ramp, Conc, 6 inch, Modified	Sft	110.000	$	$
240	8037010	_Sidewalk Ramp, Conc, 8 inch, Modified	Sft	263.000	$	$
245	8037010	_Sidewalk, Conc, 4 inch, Modified	Sft	336.000	$	$
250	8110231	Pavt Mrkg, Waterborne, 4 inch, White	Ft	2151.000	$	$
255	8110232	Pavt Mrkg, Waterborne, 4 inch, Yellow	Ft	14872.000	$	$
260	8110307	Rem Curing Compound, for Longit Mrkg, 4 inch	Ft	8782.000	$	$
265	8110321	Rem Curing Compound, for Spec Mrkg	Sft	1292.000	$	$
270	8110343	Rem Spec Mrkg	Sft	479.000	$	$
275	8117001	_Pavt Mrkg, Waterborne, 12 inch, Crosswalk	Ft	1008.000	$	$
280	8117001	_Pavt Mrkg, Waterborne, 24 inch, Stop Bar	Ft	163.000	$	$
285	8117050	_Pavt Mrkg, Waterborne, Lt Turn Arrow Sym	Ea	7.000	$	$
290	8117050	_Pavt Mrkg, Waterborne, Rt Turn Arrow Sym	Ea	3.000	$	$
295	8117050	_Pavt Mrkg, Waterborne, Thru and Rt Turn Arrow Sym	Ea	2.000	$	$
300	8117050	_Pavt Mrkg, Waterborne, Thru Arrow Sym	Ea	1.000	$	$
					TOTAL THIS PAGE	$

BID FORM

Section 1 - Schedule of Prices

Line No.	Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
305	8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	64.000	$	$
310	8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	64.000	$	$
315	8120140	Lighted Arrow, Type C, Furn	Ea	2.000	$	$
320	8120141	Lighted Arrow, Type C, Oper	Ea	2.000	$	$
325	8120170	Minor Traf Devices	LSUM	1.000	$	$
330	8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	1000.000	$	$
335	8120245	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Ft	172.000	$	$
340	8120246	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Ft	995.000	$	$
345	8120250	Plastic Drum, High Intensity, Furn	Ea	438.000	$	$
350	8120251	Plastic Drum, High Intensity, Oper	Ea	438.000	$	$
355	8120255	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch, Crosswalk	Ft	84.000	$	$
360	8120265	Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch, Stop Bar	Ft	100.000	$	$
365	8120310	Sign Cover	Ea	20.000	$	$
370	8120330	Sign, Portable, Changeable Message, Furn	Ea	3.000	$	$
375	8120331	Sign, Portable, Changeable Message, Oper	Ea	3.000	$	$
380	8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	757.000	$	$
385	8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	757.000	$	$
390	8120352	Sign, Type B, Temp, Prismatic, Special, Furn	Sft	154.000	$	$
395	8120353	Sign, Type B, Temp, Prismatic, Special, Oper	Sft	154.000	$	$
400	8120370	Traf Regulator Control	LSUM	1.000	$	$
					TOTAL THIS PAGE	$

BID FORM

Section 1 - Schedule of Prices

Line No.	Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Total Price
405	8127001	_Pavt Mrkg, Wet Reflective, Type NR, Tape, 6 inch, Crosswalk	Ft	127.000	$	$
410	8127010	_Detectable Warning Surface, Temp	Sft	20.000	$	$
415	8127050	_Audible Message Device, Temp	Ea	12.000	$	$
420	8127050	_Pedestrian Ramp, Temp	Ea	2.000	$	$
425	8127050	_Pedestrian Type II Barricade, Temp	Ea	16.000	$	$
430	8127050	_Pedestrian Type II Channelizer, Temp	Ea	56.000	$	$
435	8167011	_Slope Restoration	Syd	1459.000	$	$
440	8210005	Monument Box Adjust	Ea	2.000	$	$
445	8230431	Gate Box, Adj, Case 1	Ea	10.000	$	$

TOTAL THIS PAGE $

TOTAL FROM PAGE Addendum 1-11 $

TOTAL FROM PAGE Addendum 1-12 $

TOTAL FROM PAGE Addendum 1-13 $

TOTAL FROM PAGE Addendum 1-14 $

TOTAL BASE BID $

STANDARD SPECIFICATIONS

Perform all work under this contract in accordance with the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction. Perform all work under this Contract not included in these Standard Specifications in accordance with the City of Ann Arbor Detailed Specifications, MDOT Supplemental Specifications, and MDOT Special Provisions included in the Contract document. Any reference to the Michigan Department of Transportation (the "Department") in the above Standard Specifications, Supplemental Specifications, and Special Provisions shall also mean the City of Ann Arbor.

The Michigan Department of Transportation 2012 Standard Specification for Construction are available for download at the following web link:

https://mdotjboss.state.mi.us/SpecProv/specBookHome.htm

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

AA:DAD:TCB 1 of 3 02/08/21

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

This schedule details the requirements, if any, for the Start of Work (on or after dates specified), the Completion of Work (on or before dates specified), Restricted Dates, the Maximum Calendar Days for Open to Traffic, and the Liquidated Damages per Calendar Day for each phase of work. For the purpose of this Contract, the “Start of Work” definition is the date when all required temporary traffic control and SESC measures are in place and ready for use. The City will consider phases to be open to traffic once they have met the “Approved for Traffic” requirements defined in subsection 107.21 of the Michigan Department of Transportation 2012 Standard Specifications for Construction.

The City expects to furnish the Contractor with two (2) copies of the Contract, for its execution, on or before **February 22, 2021**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance documentation, to the City by **March 22, 2021**. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract and Notice to Proceed.

By no later than **April 12, 2021**, the Contractor shall submit a detailed schedule of work (progress schedule) for the Engineer's review and approval. The progress schedule must fully comply with the scheduling requirements contained herein. The schedule shall clearly indicate, in detail, the start and the finish date of each work task on each phase. The Contractor shall update the approved progress schedule each week and present it to the Engineer at the weekly progress meeting and must consult with the Engineer for review and approval of any proposed deviations from the most current, approved, schedule.

The Contractor shall begin the work of this project on or after **April 26, 2021**, and only upon receipt of the fully executed Contract, Notice to Proceed and approved Progress Schedule. The City will consider granting appropriate time extensions should delays prevent the Contractor from starting work on this date.

Complete the project in two (2) phases as shown on the plans and schedule the work to minimize the length of time required to complete each phase. The project work for each phase shall be sufficiently complete and in suitable condition to be designated “Approved for Traffic” and shall be open to traffic as directed by the Engineer and as follows: Phase 1 shall be open to traffic prior to commencing with Phase 2. Phase 2 shall commence within no more than three (3) calendar days of opening Phase 1 to traffic, and it and the entire project must be open to traffic within ninety (90) calendar days from the initial date of commencing with the project work.

Complete all permanent pavement markings as part of the Phase 2 work activities and prior opening the entire project to traffic.

The entire project must be complete in its entirety including final site restoration and clean up on or before **August 4, 2021**, with exception to final acceptance of restoration, which shall be by **October 2, 2021**.

Failure to open to traffic or complete all work as specified within the times specified, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct **$1000.00 per Calendar Day** in "Liquidated Damages" from the payments due the Contractor. The City will assess "Liquidated Damages" for delays in the opening to traffic and/or the completion of work for each phase, for each calendar day the street or phase remains unopen and/or the work remains incomplete beyond the required contract completion date or timeframe.

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

The Engineer may delay or stop the work due to threatening weather conditions. No compensation shall be due the Contractor for unused materials or downtime due to rain, or the threat of rain. The Contractor is solely responsible for repairing all damages to the work and to the site, including any City infrastructure, and any adjacent properties resulting from its decision to work in the rain.

The Contractor shall not work in the dark except as approved by the Engineer and shall provide lighting for night work as detailed elsewhere in this contract. The Engineer may stop the work or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the Contractor cannot be complete the work within the remaining daylight hours, or if inadequate daylight is present to properly perform or inspect the work. No compensation shall be due to the Contractor for unused materials or downtime, when the Engineer directs work stoppage for reasons due to darkness and/or inadequate remaining daylight. The Contractor is solely responsible for repairing all damages to the work and to the site, including any City infrastructure, and any adjacent properties, which result from working in the dark.

Assessment of Liquidated Damages will occur until the required work is complete in the current construction season. If, with the Engineer's approval, work extends beyond seasonal limitations, the assessment of Liquidated Damages will discontinue until the work resumes in the following construction season.

If the construction contract is not complete within the specified period(s) including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor it may terminate the Contract. Should this occur no additional compensation will be due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, payment for contract items with a Lump Sum unit price will be up to a maximum amount equal to the percentage of the contract work that is complete at the time of termination.

The City's decision to delete sections, add sections, or change the construction limits on <u>any one phase</u> shall not entitle the Contractor to receive additional compensation for work on any

other phase, nor shall it relieve the Contractor of any responsibilities for completion of work on any other phase.

Include any/all efforts to organize, coordinate, and schedule the project work in the contract unit price bid for the pay item **General Conditions, Max $90,000**.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
AUDIOVISUAL RECORDING

AA:DAD:TCB 1 of 3 02/08/21

a. Description. This work includes providing an audio-video record of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein. Perform this work for the entire project limits prior to the start of construction.

The audiovisual recording shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions, and include an index of the record that will enable the easy searching to locate particular areas of the project.

2. Prepared within the time period between contract award or notice to proceed and the scheduled start of construction.

3. Carried-out under the supervision of the Engineer.

b. Production. Complete the audiovisual recording in accordance with the following minimum requirements:

1. Media/Editing – Provide a color recording on DVD, or other approved media, using equipment that allows for the simultaneous capture of audio and visual information. Provide a recording that meets or exceeds current industry standards. Do not edit the recording.

2. Perspective/Speed/Pan/Zoom - To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 10 feet and the recording must proceed in the general direction of travel at a speed not to exceed one hundred seventy-five (175) feet per minute (2 mi/hr). Control pan and zoom rates sufficiently so that playback will ensure quality of the object(s) viewed.

3. Display - The audio-video equipment shall have transparent time, date stamp and digital annotation capabilities. The final copies of the DVD, or other approved media, shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing shall be included in the lower half of the frame in standard format (i.e. 1+00). Below the stationing show periodic information, including project name, name of area shown, direction of travel, viewing direction, etc. If stationing has not been established on-site, refer to the plans and approximate the proposed stationing. On projects with no stationing use assumed stationing starting with 0+00 and progress from west to east or from south to north.

4. Audio Commentary/Visual Features – Identify locations relative to project limits and landmarks by both audio and video means at intervals no longer than twenty-five feet along the recording route. Provide additional audio commentary as necessary during recording to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

5. Visibility/Ground Cover – Perform the recording during a time of good visibility. Do not perform during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being recorded. The Contractor shall notify the Engineer in writing in the event that the weather or snow cover is anticipated to cause a delay in recording beyond the specified time limits.

c. Coverage. The audiovisual coverage shall include the following:

1. General Criteria - These general criteria shall apply to all recording and includes all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked and or where materials will be stored. The recording shall extend an additional 50 feet outside of all areas. It shall include all significant, existing fabricated/constructed and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, pubic signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.

2. Road Construction Area. The recording coverage shall:

A. Extend to 50 feet outside of the right-of-way and easements area as shown on the plans.

B. Extend 50 feet outside the construction limits on all streets, including side streets.

Record each side each side street(s) separately.

3. Detour Route/Maintenance of Traffic Areas - The entire detour route and maintenance of traffic areas shall be recorded as indicated in this Detailed Specification except as follows:

A. The recording must proceed in the general direction of travel at a speed not exceeding one hundred seventy-five (175) feet per minute (2 mi/hr).

B. The coverage area shall include the street and not go beyond the curb, or edge of asphalt, except in areas where there is a fair possibility that the detoured traffic will drive over the curb, such as at intersections.

C. The recording shall include sidewalk ramps and other features likely to have been damaged or likely to be damaged as a result of existing traffic, temporary detoured traffic and or construction traffic. In these areas, recording may need to proceed much more slowly. The required recording shall be limited to the direction of travel for the planned detour route(s).

D. Include any proposed pedestrian detour routes the required coverage area.

4. Private Property - Record any/all authorized private property the Contractor may utilize as part of this project. Record private property bordering the project limits or work areas where work is scheduled to occur or where construction traffic could result in disturbance and potential damage. This includes buildings, driveways, decks, landscaping, trees, and all other similar features.

5. Other Areas – Where the Contractor, in its opinion, warrants the establishment of a record of existing conditions in other areas not described or required by this detailed specification, it shall record these at its sole expense. The Contractor shall notify the Engineer in writing of such areas.

The Engineer may direct the recording of other minor areas not specified herein at the Contractor's sole expense.

d. Audiovisual Recording Services. The Contractor shall utilize one of the following companies, which have demonstrated to be capable of providing the recording services required by this detailed specification.

Construction Video Media
Midwest Company
Topo Video, Inc.
Video Media Corp.
Paradigm 2000, Inc.
Finishing Touch Photo and Video

The Contractor may utilize another company of with demonstrated comparable or superior qualifications upon written approval from the Engineer.

e. Audiovisual Recording Acceptance. Furnish a copy of the audio-video record to the Engineer for review a minimum of one (1) week prior to mobilizing and bringing any materials or equipment to the project site or designated staging areas.

Within three (3) days following receipt, the Engineer will review the recording and either accept it or require the Contractor to address any discrepancies. Prior to mobilizing onto the site, the Contractor will re-record any/all portions of the audio-video record deemed unacceptable as documentation of the existing conditions and resubmit this record to the Engineer for final review.

Within two (2) weeks of final review and acceptance from the Engineer, the Contractor will furnish two (2) copies of the completed audio-video record to the Engineer and retain a third copy for its use.

f. Measurement and Payment. Measure and pay for the completed work, as described, at the contract unit price using the following pay item.

Pay Item	**Pay Unit**
Audiovisual Recording	Lump Sum

Measure **Audiovisual Recording** by the unit lump sum and pay for it at the contract unit price, which price includes costs for all labor, equipment and materials necessary to complete the work and provide the completed audio-video record the Engineer. The unit price includes recording the entirety of all project limits/areas as described. Any/all required re-recording will be at the sole expense of the Contractor.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
GRADING, SIDEWALK, SIDEWALK RAMP, AND DRIVEWAY APPROACH

AA:DAD:TCB 1 of 1 02/08/21

a. Description. Remove miscellaneous structures and materials, and complete all earthwork required to construct new and replacement sidewalks, sidewalk ramps, and driveway approaches to the lines and grades shown on the plans and/or as directed by the Engineer. Complete this work according to the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, this detailed specification, and as directed by the Engineer.

b. Materials. Provide materials in accordance with subsection 205.02 of the MDOT 2012 Standard Specifications for Construction as necessary to achieve the required cross section(s). The Contractor may use excavated material, if suitable, as embankment with approval by the Engineer.

c. Construction. Complete this work according to applicable subsection 205.03 of the MDOT 2012 Standard Specifications for Construction. Grading for sidewalks and sidewalk ramps includes, but is not limited to, the following work:

1. Stripping and stockpiling topsoil for use in turf establishment as approved.
2. Removing rocks or boulders less than 0.5 cubic yards in volume.
3. Excavating material to a depth necessary for construction.
4. Disposing of excess and unsuitable material according to section 205 of the MDOT 2012 Standards Specifications for Construction.
5. Shaping, grading, and compacting the subgrade to proposed grades to prepare it for embankment, subbase or aggregate base bedding materials or for an aggregate surface course.
6. Furnishing and placing embankment material to the grades necessary for construction.
7. Shaping, grading, and compacting embankment to proposed grades to prepare it for subbase or aggregate base bedding materials or for an aggregate surface course.
8. Matching new sidewalk, sidewalk ramp, and driveway approach grades with existing grades as required.

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

Pay Item	**Pay Unit**
Grading, Sidewalk, Sidewalk Ramp, and Driveway Approach	Square Yard

Measure **Grading, Sidewalk, Sidewalk Ramp, and Driveway Approach** areas in place by the unit square yard and pay for it at the contract unit price, which price includes the costs for all labor, equipment and materials necessary to complete the work.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
CONCRETE DRIVEWAY OPENING

AA:DAD:TCB 1 of 1 01/21/21

a. Description. This work consists of constructing concrete driveway openings at the locations shown on the plans in accordance with section 802 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, applicable standard or special details, as directed by the Engineer, and as specified herein.

b. Materials. Provide materials meeting the requirements specified in subsection 802.02 of the MDOT 2012 Standard Specifications for Construction and as specified herein.

Use concrete mixture Grade P-NC (658 pounds/cubic yard cement content) for Driveway Opening, Conc, Det M, Modified as specified in subsection 601.02 of the MDOT 2012 Standard Specifications.

Provide concrete mixtures containing 6AA coarse aggregates that are either natural or limestone and meet the requirements of section 902 the MDOT 2012 Standard Specifications for Construction.

The Contractor is solely responsibility for providing specific concrete mix designs that meet the requirements of this detailed specification.

c. Construction. Use construction methods in accordance with subsection 802.03 of the MDOT 2012 Standard Specifications for Construction.

Place expansion joints of the thickness shown on the details or as directed by the Engineer.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

Pay Item	**Pay Unit**
Driveway Opening, Conc, Det M, Modified	Foot

Measure **Driveway Opening, Conc, Det M, Modified** length in place by the unit foot and pay for it at the contract unit price, which price includes the costs for all labor, equipment and materials to complete the work.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
CONCRETE SIDEWALK, ADA RAMPS, AND DRIVEWAY APPROACHES

AA:MGN:JKA:TCB 1 of 3 02/08/2021

a. Description. This work shall consist of constructing concrete sidewalk, ramp, or drive approaches of the types as indicated on the plan sheets, as detailed in the specifications, or as directed by the Engineer. It shall also include constructing concrete drive approaches of the types as indicated on the plan sheets, as detailed in the specifications, or as directed by the Engineer. All work shall be in accordance with Section 801 and 803 of the 2012 MDOT Standard Specifications for Construction and as specified herein.

All ADA ramps shall be installed with detectable warning units. Reference the Detailed Specification for Detectable Warning Surface for additional requirements.

b. Materials. The materials shall meet the requirements as specified in the 2012 MDOT Standard Specifications and as required herein. The grade of concrete for items designated as "P-NC" shall be Grade P-NC concrete (658 lbs/yd^3 cement content) as specified in Section 601 of the 2012 MDOT Standard Specifications.

The grade of concrete for all remaining items covered by this detailed specification shall be grade P1 as specified in Section 601 of the 2012 MDOT Standard Specifications for Construction. The Contractor may elect to add GGBFS to P1 mixtures in accordance with the requirements of the contract documents. No additional payment will be made for concrete mixtures containing GGBFS.

All concrete mixtures shall contain 6AA coarse aggregates which are either natural or limestone and meet the requirements of Section 902 of the 2012 Michigan Department of Transportation Standard Specifications for Construction.

It shall be the Contractor's sole responsibility to propose specific concrete mix designs which meet the requirements of this detailed specification.

c. Construction. The Contractor is responsible to construct all sidewalk, sidewalk ramps, curbs, and all other concrete items within ADAAG compliance. All sidewalk and curb ramps must be constructed in accordance with MDOT Standard Detail R-28-I (or the version in effect at the time of Bid Letting.)

Where concrete sidewalk and/or ADA compliant ramps are to be placed, they shall be placed on a minimum of 4 inches of Granular Material, Class II, compacted to 95% of its maximum dry density.

Concrete drive approaches shall be placed on either aggregate base course or a sand sub-base as shown on the plans or as directed by the Engineer. The required density of the material underlying the concrete drive approach shall be that of the material on which it is placed and required by those specifications.

Prior to placing any concrete, the subgrade shall be completed and trimmed to final elevation. If a cold joint is required, the existing concrete is to be cleaned with compressed air to expose the aggregate in the concrete.

Where indicated on the plans to be performed, the Contractor shall also sawcut curbs to provide openings for sidewalk ramps as indicated. The Engineer shall define the extent of sawcutting. This work will not be paid for separately, but shall be included in the corresponding price of the ADA ramp to be placed.

The concrete items being placed shall not be opened to construction or vehicular traffic until such time as the concrete has reached the required compressive strength. The Contractor shall cast cylinders in accordance with Section 601 of the 2012 MDOT Standard Specifications, and as approved by the Engineer, and obtain concrete compressive strength in accordance with the requirements of Section 104.11, Table 104-1. Cylinders cast for open to traffic determinations shall be cured in the same manner and environment as the concrete items which they represent.

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

All ADA ramps shall be installed with detectable warning units. Reference the Detailed Specification for Detectable Warning Surface for additional requirements.

d. Measurement and Payment. The completed work as measured for the following pay items will be paid for at the contract unit prices for the following contract items (pay items):

Contract Item (Pay Item)	**Pay Unit**
Sidewalk, Concrete, ___ inch, Special	Square Foot
Sidewalk Ramp, Concrete, ___ inch, P-NC, ADA, Modified	Square Foot
Sidewalk Ramp, Concrete, ___ inch, ADA, Modified	Square Foot
Concrete Drive Approach, Non-Reinforced, P-NC, ___ inch	Square Foot

The above items will be measured by area in square feet and be paid for at their respective contract unit price, which price shall be payment in full for all labor, equipment and material needed to accomplish this work. The unit price shall also include all costs associated with sawcutting curbs to provide openings for ADA sidewalk ramps as indicated on the plans.

Where the Engineer directs the use of high early concrete for pay items that are not designated as “P-NC,” the additional cement shall be paid for separately. No additional payment will be made for cement for pay items that are designated “P-NC.”

Excavation for placement of Granular Material, Class II, bedding material shall be included in the item of work "Sidewalk Grading” and “Sidewalk Ramp Grading” and shall not be paid for separately.

Detectable warning units cast in place, shall be paid for in accordance with the Detailed Specification for Detectable Warning Surface.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
DETECTABLE WARNING SURFACE

AA:DAD:TCB 1 of 2 02/08/21

a. Description. This work consists of furnishing and installing cast in place detectable warning units in compliance to the Americans with Disabilities Act (ADA) Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, section 4.29.2 Detectable Warnings on Walking Surfaces. Complete work in accordance with the Detailed Specification for "Concrete Sidewalk, Sidewalk Ramps, and Driveway Approach", section 803 of the Michigan Department of Transportation (MODT) 2012 Standard Specifications for Construction, MDOT Standard Plan Series R-28, as indicated on the plans, and as modified herein.

b. Materials. Use color Federal Number 22144 (frequently referred to as "Colonial Red" or "Brick Red") for detectable warning tiles.

The following apply to this detailed specification: American Society for Testing and Materials (ASTM) Test Methods B117, C1028, D543, D570, D638, D695, D790, D2486, D2565, D5420, and E84.

Provide detectable warning tiles meeting the following material properties, dimensions, and tolerances using the most current test methods:

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

12. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B117 not to show any deterioration or other defects after 100 hours of exposure

Submit manufacturer's literature describing products, installation procedures and maintenance instructions. Provide cast-in-place detectable surface tiles and accessories as produced by a single manufacturer.

Samples for Verification Purposes: Submit two (2) tile samples minimum 6" x 8" of the kind proposed for use. Properly label samples to show the following information: Name of Project; Submitted by; Date of Submittal; Manufacture's Name; Catalog No.; and Date of Fabrication.

Material Test Reports: Submit current test reports from a qualified, independent, testing laboratory that verify materials proposed for use comply with requirements of this detailed specification. Use a certified and qualified independent testing laboratory to perform any/all other tests required by this detailed specification to ensure the proposed cast-in-place tactile warning system is compliant. All test reports submitted shall be certified by the testing laboratory and shall clearly state that all tests were completed within 5 years of the date of the submittal. The manufacturer shall certify in writing that the materials provided to the project are manufactured with the same materials and manufacturing procedures as those used in the materials on which the tests were performed.

c. Construction. Installer Qualifications: Engage an experienced installer who has successfully completed tile installations similar in material, design, and extent required for this project.

Follow manufacturer specifications for installation, except where they conflict with MDOT Standard Plan Series R-28, or other project requirements.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit prices using the following respective pay items:

Pay Item	**Pay Unit**
Detectable Warning Surface, Modified	Foot

Measure **Detectable Warning Surface, Modified** length in place by the unit foot and pay for it at the contract unit price, which price includes the costs for all labor, equipment and materials to complete the work.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
AUDIBLE MESSAGE DEVICES

a. Description. This work consists of furnishing and installing temporary audible message devices for use in Temporary Pedestrian Alternate Routes (TPAR) for pedestrians with visual impairments in compliance with the latest versions of the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and the Public Right-of-Way Accessibility Guidelines (PROWAG). All work shall be in accordance with the Detailed Specification for Maintenance of Traffic, as indicated on the plans, and as modified herein.

b. Categories. Audible message devices (AMDs) will have two categories as follows:

1. AMDs without a pushbutton: These devices will operate based on a proximity sensor; the audible message content will be given when the sensor is activated.

2. AMDs with a pushbutton and locator tone: These devices will have the capability of utilizing a locator tone for pedestrians with visual impairments to locate the pushbutton on the AMD. The pushbutton on the AMD will activate the audible message content. The AMD may continuously sound the locator tone, or the locator tone may be activated with a proximity sensor.

b. Criteria. Below are the necessary criteria for all types of AMDs to be on the APL.

1. Compliant with the latest version of the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and the Public Right-of-Way Accessibility Guidelines (PROWAG).

2. Be weatherproof and fully operational between -20° F to +130° F and in a humidity range of 0-100% non-condensing.

3. Be able to be battery operated.

4. Proximity sensor shall be able to detect pedestrians from 15 feet away.

5. The ability to verbalize a custom voice messages for a minimum of 60 seconds.

6. Volume level requirements.
   a. Volume level measured at 3 feet from the AMD shall be 2 dB minimum and 5 dB maximum above ambient noise level in standard operations and shall be responsive to ambient noise level changes.
   b. The ability to maximize volume level at 100 dBA

The following are additional necessary criteria for AMDs with pushbuttons and locator tones:

1. The device shall be designed such that the pushbutton is within the Reach Ranges identified in PROWAG when the device is placed on level ground. In addition, the pushbutton shall be placed approximately at 42 inches (but no more than 48 inches) from the bottom of the device.

2. Pushbuttons shall incorporate a locator tone at the pushbutton. Pushbutton locator tone volume measured at 3.0 feet from the pushbutton shall be 2 dB minimum and 5 dB maximum above ambient noise level and shall be responsive to ambient noise level changes. The duration of the locator tone shall be 0.15 seconds maximum and shall repeat at intervals of one second. The locator tone may be activated by a proximity sensor.

d. Materials. Approved Temporary Audible Message Devices are as follows:

- Model 400ADA audible Device, manufactured by Empco-Lite, 1675 Shanahan Drive, South Elgin, IL USA 60177.
  - The 400ADA is an audible information device that can be mounted on various safety devices like the ADA Wall, 42" Cones, and the Safety Wall. Or it can just be a stand-alone device.
  - Easily program your message with built-in microphone and speaker.
  - Record up to a 60 second message.
  - Customize message for each location. See "Messages for Audible Information Devices" for message guidelines and helpful information.
  - When routes are blocked (especially mid-block closings), there are alternate crossings or alternate routes that are not continuous, these units provide positive guidance for the visually impaired by providing needed audible information. See 2009 MUTCD Section 6D.01 E, Section 6D.02, Section 6F.14, Section 6F.16 and notes on Figure 6H-28 and Figure 6H-29 (see PDF).
  - Unit can be mounted on a standard barricade light housing utilizing two 6V spring terminal batteries or can be a self-contained unit operating on four D-Cell batteries.
  - Unit is triggered by motion detector when pedestrians get within 15 feet of the unit.
- SpeakMaster 500, manufactured by MDI Worldwide, 38271 W Twelve Mile Road, Farmington Hills, MI 48331.
  - The ADA SpeakMaster™ is an audible warning device that alerts pedestrians of a sidewalk closure ahead and provides navigation instructions Rugged design, simple to install and programmable through Bluetooth connectivity, the 9” DFB sign promotes safety where ever they’re installed.
  - The all-aluminum ADA SpeakMaster stands 5.5 feet high, is completely weather resistant, and ADA compliant. The two-sided frame at the top has snap-open side rails to easily change custom signs. The frame can rotate 360° to accommodate the different requirements of multiple urban areas. The unit is powered by an extended-life battery stored in a key-locked compartment in the base, and the base can be weighted for added stability and security. The electronics are housed in the upright, also in a key-locked compartment, and messages can be programmed on site, by cell phone, or computer. The base tilts and rolls on hidden wheels.
  - The ADA SpeakMaster is positioned approximately 100 feet before the actual sidewalk closure. As the pedestrian approaches, he hears a unique locator tone, which the visually impaired have been taught to recognize. The tone is either on continuously or is activated by an optional motion sensor and indicates that there is more information. The pedestrian locates the push button and activates the voice module to hear navigation instructions. He can then safely pass through the temporary pedestrian accessible route.

e. Construction. Installer’s Qualifications: Engage an experienced installer who has successfully completed AMD installations similar in material, design, and extent to that indicated for this project.

The contractor shall follow manufacturer specifications for installation, except where they conflict with MMUTCD or other project requirements.

f. Measurement and Payment. The completed work as measured for the following pay items will be paid for at the contract unit prices for the following contract items (pay items):

Contract Item (Pay Item)	**Pay Unit**
Audible Message Device, Temp	Each

Measure **Audible Message Device, Temp** individually in place by the unit each and pay for it at the contract unit price, which price includes the costs for all labor, equipment and materials necessary to complete the work.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

AA:DAD:TCB 1 of 5 02/08/21

a. Description. The Contractor will maintain traffic in accordance with the plans, subsection 104.11 and section 812 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), applicable MDOT supplemental specifications, applicable MDOT signing typicals, as directed by the Engineer, and as herein specified.

The following, and herein included, Michigan Department of Transportation (MDOT) Maintaining Traffic Typicals and Work Zone Device Details apply to the project: M0020a, M0040a, M0140a, WZD-100-A, and WZD-125-E.

b. Construction Influence Area (CIA). The CIA includes the area within the rights-of-way of South Industrial Highway, East Eisenhower Parkway, East Stadium Boulevard, Jewett Avenue, Rosewood Street, Astor Avenue, and Stimson Street. It also includes the affected portions of any private streets and driveways along, and contiguous with, South Industrial Highway, roadway segments used for detours, and all other locations that contain temporary traffic control devices, pavement markings, and any other project related traffic maintenance items.

The Contractor shall furnish, erect, maintain, and upon completion of the work, remove all traffic control devices within and around the CIA, and along posted detour routes, for the safety and protection of traffic. This includes, but is not limited to, regulatory and warning signs, barricades, channeling devices and other minor devices where required by the Engineer.

c. Traffic Restrictions. The work covered by this specification consists of measures to protect and maintain traffic and to protect the work while the contract is in force, as shown on the plans and specified herein.

The Contractor shall conduct all work Monday through Saturday between 7:00 a.m. and 8:00 p.m. unless the Engineer authorizes in writing an alternate plan identifying the days and hours of work prior to commencement of construction. Should the Contractor for certain reasons need to perform any work on Sunday(s) or during nighttime hours, it shall notify the Engineer three (3) working days (72 hours) in advance of such work, and the Contractor must have written approval from the City prior to commencing with the work.

The Contractor shall be perform no work or interrupt traffic during holiday periods as defined by the City and MDOT, unless otherwise authorized by the Engineer. All streets and sidewalks that can be open will be open. Trucking on or off site is prohibited unless authorized by the Engineer.

Maintain access to all residential and commercial driveways at all times.

During non-working periods, any area with uncompleted work shall have plastic drums at specific locations and protective fencing, as directed by the Engineer, and at no additional cost to the project.

The Contractor shall, at all times, conduct its work to insure the least possible obstruction to traffic and inconvenience to the general public, businesses, and residents in the vicinity of the work. It shall minimize impacts traffic between the hours of 7:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 6:00 p.m. unless otherwise approved by the Engineer or as specified on the Lane Closure Permit. It shall make any/all major changes to temporary traffic controls either between 9:00 a.m. and 3:30 p.m. or between 7:00 p.m. and 6:30 a.m. in order to minimize interference with rush hour traffic. All traffic controls must be in place and ready for traffic each day by 6:30 a.m. and 3:30 p.m. The Contractor shall provide traffic regulators (flag persons) in conformance with Part VI of the MMUTCD when it is necessary to obstruct traffic temporarily to load and unload construction vehicles/trucks. During temporary obstructions, a minimum of two traffic regulators are required. The cost of traffic regulators (flag control) shall be included in the contract pay item "Traf Regulator Control".

The Contractor shall maintain access to businesses, residences, and side street(s) within the CIA for the duration of the project. The Contractor shall make every effort to coordinate its operations to minimize interruptions affecting access. The Contractor shall notify the Engineer forty-eight (48) hours in advance of any work near business or residential driveways, and stage work part-width if required to maintain access. The Contractor will not prohibit access to any business or residence during any phase of construction unless approved by the property owner and the Engineer. Flagging will be required at the discretion of the Engineer.

The Contractor shall maintain a minimum of one lane of traffic in the southbound direction at all times during construction between Stimson Street and East Eisenhower Parkway unless otherwise authorized by the Engineer. It shall also maintain a minimum of one lane of traffic in each direction at all times during construction between Stimson Street and East Stadium Boulevard unless otherwise authorized by the Engineer.

Lane widths shall be a minimum of 9 feet wide. Contractor shall schedule work so that under no circumstances it needs to stop traffic with exception to the loading and unloading of construction vehicles/trucks as noted above. It shall suspend work within the CIA during peak traffic hours and/or when any construction activity unduly hampers or delays traffic, at the discretion of the Engineer.

The Contractor shall notify local police, fire departments and other emergency response units a minimum of three business days (72 hours) prior to the closure of any lanes, or traffic shifts causing restricted movements of traffic or restricted access. It shall keep “live” fire hydrants in or adjacent to the work and make fire-fighting forces aware of their availability at all times during construction.

During the lane closures access for emergency vehicles (fire, ambulance, police, etc.) must be maintained to adjacent homes, businesses and subdivisions at all times.

d. Materials. Materials for all traffic control devices used to temporarily control and maintain traffic shall meet the requirements of subsection 812.02 of the MDOT 2012 Standard Specifications for Construction, the 2011 MMUTCD, the applicable MDOT typicals and details included herein, and as described below.

All signs shall be of sizes shown on the plans, unless otherwise directed by the Engineer.

Install temporary signs, which are to remain in the same place for 14 days or more, on driven posts. Install all other temporary signs on portable supports. All signs shall have a minimum bottom height of 7.0 feet.

Channelizing devices required for all lane closures shall be plastic drums.

Replace all existing pavement markings removed for traffic control or obliterated during construction operations with thermoplastic markings. This includes the special markings (i.e., overlay cold plastic arrows symbols, only legends, 24 inch stop bars, etc.).

All sign materials and supports must meet NCHRP-350 crash worthy requirements.

e. Construction. Temporarily traffic control and maintenance of traffic shall meet the requirements of subsection 812.03 of the MDOT 2012 Standard Specifications for Construction, the 2011 MMUTCD, the applicable MDOT typicals and details included herein, and as described below.

Phase/stage the construction as shown on the plans in order to complete the work.

The Contractor shall notify the Engineer a minimum of seven (7) business days prior to the implementation of lane and/or road closures.

The Contractor shall provide, erect and maintain any additional signs, barricades and other traffic control devices, as needed, and as directed by the Engineer. The Engineer will pay for this work by increasing the quantities of approved contract items.

The Contractor shall furnish and place all necessary temporary traffic control devices to maintain traffic during construction. It shall keep all work, construction equipment, and material storage behind the curb, or behind barricades or channelizing devices, all in combination with protective fencing, if required to protect open excavations, and shall not in any way hamper vehicle movement or impair traffic vision. It shall also provide protection to all uncured concrete sidewalk, driveways, and curb and gutter, as needed, until all vehicular or pedestrian traffic can cross without damage. The Contractor shall install additional barricades and protective fencing, as required, at the end of each day to insure no disturbance to the work area.

Distances between warning, regulatory, and guide signs as shown on the plans and typicals are approximate, and may require field adjustment, as directed by the Engineer.

The Contractor shall maintain traffic as shown on the plans, access for local traffic on local streets, and keep all intersections open to traffic at all times, unless otherwise shown on the plans or specifically authorized in writing by the Engineer.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. It shall remove and replace patch areas, which extend more than halfway across the roadway, to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall remove existing pavement markings and place temporary pavement markings as directed by the Engineer.

Perform any removal of permanent pavement markings using methods that will not scar the pavement.

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

The Contractor shall coordinate its operations with all subcontractors, utilities, and/or other contractors performing work on this and other projects within, or adjacent to, the Construction Influence Area (CIA). The contractor shall avoid conflicts in maintaining traffic operations, signing, and orderly progress of other contract work.

Prior to the start of construction, the Contractor shall obtain a "Right-of-Way" Permit from City of Ann Arbor Customer Services Unit. The Contractor shall notify the Project Engineer and obtain a "Traffic Detour or Lane Closure" Permit from City of Ann Arbor Project Management Services Unit a minimum of 72 business hours prior to the implementation of any traffic shifts, lane closures and street closures. The City will waive any fees associated with these permits.

Remove, cover, or lay down and remove legs, any/all temporary warning, regulatory, and guide signs not required for a use.

Replaced in kind on new supports any/all City of Ann Arbor signs removed for traffic control or obliterated during construction operations.

f. Measurement and Payment. The Engineer will pay for maintaining traffic, as described, at the contract unit prices for the following items in accordance with subsection 812.04 of the MDOT 2012 Standard Specifications for Construction and any detailed specifications, special provisions or supplemental specifications included in the contract.

Pay Item	**Pay Unit**
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Each
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Each
Lighted Arrow, Type C, Furn	Each
Lighted Arrow, Type C, Oper	Each
Minor Traf Devices	Lump Sum
Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Foot
Plastic Drum, High Intensity, Furn	Each
Plastic Drum, High Intensity, Oper	Each
Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch, Crosswalk	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch, Stop Bar	Foot
Sign Cover	Each

Pay Item (continued)	**Pay Unit**
Sign, Portable, Changeable Message, Furn	Each
Sign, Portable, Changeable Message, Oper	Each
Sign, Type B, Temp, Prismatic, Furn	Square Foot
Sign, Type B, Temp, Prismatic, Oper	Square Foot
Sign, Type B, Temp, Prismatic, Special, Furn	Square Foot
Sign, Type B, Temp, Prismatic, Special, Oper	Square Foot
Traf Regulator Control	Lump Sum
Pavt Mrkg, Wet Reflective, Type NR, Tape, 6 inch, Crosswalk	Foot
Detectable Warning Surface, Temp	Foot
Audible Message Device, Temp	Each
Pedestrian Ramp, Temp	Each
Pedestrian Type II Barricade, Temp	Foot
Pedestrian Type II Channelizer, Temp	Foot

The plans and applicable MDOT Maintaining Traffic Typicals are the basis for the estimated quantities of temporary traffic control devices needed to maintain traffic on this project.

Any additional signing or maintaining traffic devices required to expedite the construction shall be at the Contractor’s expense unless approved by the Engineer.

Traffic control devices not paid for separately shall be included in the payment for the pay item “Minor Traf Devices”.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
TEMPORARY DETECTABLE WARNING SURFACE

AA:DAD 1 of 2 02/08/21

a. Description. This work shall consist of furnishing and installing temporary detectable warning units in compliance to the Americans with Disability Act (ADA). All work shall be in accordance with section 812 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, MDOT Special Detail R-28-J (current version), as indicated on the plans, and as modified herein.

b. Related Documents. Americans with Disabilities Act (ADA) Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 Detectable Warnings on Walking Surfaces.

c. Submittals. Submit manufacturer's literature describing products, installation procedures and maintenance instructions. Provide temporary detectable surface applications and accessories as produced by a single manufacturer.

Samples for Verification Purposes: Submit two (2) tile samples minimum 6" x 8" of the kind proposed for use. Samples shall be properly labeled and shall contain the following information: Name of Project; Submitted by; Date of Submittal; Manufacture's Name; Catalog No.; and Date of Fabrication.

Material Test Reports: Submit current test reports from a qualified, independent, testing laboratory indicating that materials proposed for use comply with requirements and meet the properties indicated. The required tests listed elsewhere in this Detailed Specification shall be performed by a certified and qualified independent testing laboratory on a cast-in-place tactile warning system. All test reports submitted shall be certified by the testing laboratory and shall clearly state that all tests were completed within 5 years of the date of the submittal. The manufacturer shall certify in writing that the materials provided to the project are manufactured with the same materials and manufacturing procedures as those used in the materials on which the test were performed.

d. Criteria. The temporary detectable warning surfaces shall meet the following material properties, dimensions, and tolerances using the most current test methods:

1. Water Absorption: Not to exceed 0.35% when tested in accordance with ASTM-D570.

2. Slip Resistance: 0.80 minimum combined wet/ dry static coefficient of friction on top domes and field area, when tested in accordance with ASTM C1028.

3. Compressive Strength: 18,000 psi minimum, when tested in accordance with ASTM D695.

4. Chemical Stain Resistance: No reaction to 1% hydrochloric acid, urine, chewing gum, soap solution, motor oil, bleach, calcium chloride, when tested in accordance with ASTM D543 or D1308.

5. Wear Depth: 300 minimum, when tested in accordance with ASTM C501.

6. Flame Spread: 25 maximum, when tested in accordance with ASTM E84.

7. Gardner Impact: 50 in.-lbs. minimum, when tested in accordance with Geometry "GE" of ASTM D5420.

8. Salt and Spray Performance of Tile and Adhesive System when tested to ASTM-B117 not to show any deterioration or other defects after 100 hours of exposure.

e. Materials. The following are acceptable products for Temporary Detectable Warning Surfaces. If at any time, the surface shows damage, it must be replaced at the Contractor's expense.

- RediMat by Detectable Warning Systems
- Self-Adhesive Truncated Domes Mats for Asphalt or Concrete by ADA Sign Depot

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

The contractor shall follow manufacturer specifications for installation.

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

Contract Item (Pay Item)	**Pay Unit**
Detectable Warning Surface, Temp	Square Foot

Measure **Detectable Warning Surface, Temp** area in place by the unit square foot and pay for it at the contract unit price, which price includes the costs for all labor, equipment and materials necessary to complete the work.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY PEDESTRIAN RAMP

OFS:RAL 1 of 2 APPR:DMG:CAL:10-30-15

a. Description. This work consists of furnishing, installing, maintaining, relocating, and removing a temporary pedestrian ramp as identified in the proposal or on the plans. Use temporary pedestrian ramps to facilitate pedestrian travel on accessible facilities over curbs or other uneven terrain features with a vertical difference of 1/2 inch or greater. Damaged pedestrian ramps will be replaced as directed by the Engineer.

b. Materials. Provide materials to construct a temporary pedestrian ramp in accordance with the *Americans with Disabilities Act (ADA)*, the standard specifications, and the following:

1. Ensure the material used to construct the temporary pedestrian ramp is firm, stable, skid resistant, and forms a continuous hard surface. Ensure the surface does not warp, buckle or otherwise become uneven, and materials support the weight of pedestrians as well as motorized scooters and wheelchairs. Suitable materials to construct the surface of the ramp include asphalt materials, Oriented Strand Board (OSB) or plywood, dimensional lumber, certain reclaimed or other materials as approved by the Engineer. Compacted soils, aggregate and sand are prohibited.

2. Provide a handrail on both sides of the ramp if the ramp is not exposed to vehicle traffic and has a total rise greater than 6 inches, and a length greater than 72 inches. Ensure the handrail is between 1.25 and 1.5 inches wide and configured to be a “graspable” cross-section. See construction subsection 2.A for additional details. When the ramp is exposed to traffic, in lieu of handrails, use a protective edge 2.5 inches minimum height above the ramp surface or 1:10 flare on both sides of the ramp.

3. Ensure the surface of the ramp is free draining; in addition provide features that allow drainage to move past the ramp installation (i.e. along the gutter pan underneath the ramp if the ramp is installed on a curb).

4. Provide materials to construct detectable edging along open sides of the ramp if required.

5. If asphalt materials are not used to construct the surface of the ramp, provide an antiskid coating or surface treatment approved by the Engineer.

c. Construction. Construct the temporary pedestrian ramp in accordance with the manufacturer’s recommendations (if applicable), *ADA*, the plans, and the following:

1. Ensure the useable surface of the ramp is 48 inches wide and does not deflect due to pedestrian traffic. Ensure an anti-skid surface treatment is applied to the useable area of the ramp if it is not made from asphalt materials. The maximum cross slope of the ramp is 2

percent. Ensure both ends of the ramp smoothly transitions to the adjacent surface, with 1/4 inch or less vertical difference.

Construct the ramp to maintain a longitudinal slope from 1:10 to 1:12 where possible. Otherwise, a longitudinal slope from 1:8 to 1:10 may be used for a maximum rise of 3 inches. Temporary pedestrian ramps with longitudinal slopes greater than 1:8 are prohibited.

A. Provide a handrail on both sides of the ramp if required as stated herein. Ensure the top of the handrail is between 34 and 38 inches above the surface of the ramp. Ensure a minimum width of 36 inches is maintained between the handrails, with a minimum clearance of 1.5 inches behind and 18 inches above.

Construct the handrail such that the bending stress applied by a bending moment created by a 250 pound force is less than the allowable stress for the materials and the construction of the handrail. Construct the handrail to withstand the shear stress induced by a 250 pound force. Ensure all fasteners, mounting devices and support structures are also able to withstand shear stress induced by a 250 pound force.

2. Construct a detectable edging anytime a handrail is required, and anytime the path changes direction. This includes a turn onto the ramp from the path. Detectable edging must begin a maximum of 2.5 inches above the ramp surface, and extend at least 6 inches above the ramp surface.

3. Ensure a clear space (minimum 48 inches by 48 inches) is provided above and below the ramp.

4. Avoid locating ramps in areas of drainage collection, ponding or running water, which can produce slippery or unsafe conditions. If the ramp is located over a gutter pan or other drainage structure, provide features to facilitate water movement around or under the ramp as approved by the Engineer.

5. Ensure all debris and construction material is cleared from the surface of the ramp throughout its use. Ensure snow and ice is removed; the use of an approved de-icing agent may be required. Repair or replace the ramp if it becomes uneven, unstable, or displaces due to weather events, construction activities, or other causes as directed by the Engineer.

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

Pay Item	**Pay Unit**
Pedestrian Ramp, Temp	Each

Pedestrian Ramp, Temp includes all labor, equipment, and materials to furnish, install and remove a temporary pedestrian ramp at the locations shown on the plans, as well as all costs for maintaining, clearing debris, deicing, reconfiguring, and relocating the temporary pedestrian ramp throughout the life of the contract.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY PEDESTRIAN TYPE II BARRICADE

OFS:RAL 1 of 2 APPR:CAL:CT:08-02-16

a. Description. This work consists of furnishing, installing, maintaining, relocating, and removing a temporary pedestrian Type II barricade section as identified in the proposal or on the plans. Use temporary pedestrian Type II barricades to close non-motorized facilities including sidewalks, bicycle paths, pedestrian paths, and shared use paths that are not part of the roadway. One pedestrian Type II barricade is defined as a barricade section at least 43 inches wide, including all supports, ballast, and hardware.

b. Materials. Provide a temporary pedestrian Type II barricade that meets the requirements of *National Cooperative Highway Research Program Report 350 (NCHRP 350)* or *Manual for Assessing Safety Hardware* (MASH), in addition to meeting the following requirements:

1. Provide barricade sections at least 43 inches wide, designed to interconnect to ensure a continuous *Americans with Disabilities Act (ADA)* compliant tactile barrier. Ensure the connection includes provisions to accommodate non-linear alignment as well as variations in elevation at the installation area.

2. Ensure the top surface of the barricade is designed to function as a hand-trailing edge, and has a height between 32 and 38 inches. Ensure the lower edge of the barricade is no more than 2 inches above the surface of the non-motorized facility. Ensure the top edge of the bottom rail of the barricade is a minimum of 8 inches above the surface of the non-motorized facility. The barricade may have a solid continuous face. Finally, all features on the front face of the barricade (the face in contact with pedestrians) must share a common vertical plane.

3. Equip both sides of the barricade with bands of alternating 6-inch wide orange and white vertical stripes of reflective sheeting. Two bands of sheeting 6 inches tall and a minimum of 36 inches long containing at least two orange and two white stripes each are required. One band placed near the top and one near the bottom if the barricade section has a solid face. If the barricade consists of two rails, affix one band of sheeting to each rail. Ensure the stripes of reflective sheeting are aligned vertically. Ensure this sheeting meets or exceeds the requirements of *ASTM D 4956* Type IV sheeting.

c. Construction. Construct the temporary pedestrian Type II barricade in accordance with the manufacturer's recommendations, Michigan Manual on Uniform Traffic Control Devices (MMUTCD), the plans, and the following requirements:

1. Install the barricade as shown on the plans and as directed by the Engineer. Interconnect all barricade sections using hinge components if necessary to ensure a continuous detectable edge for the entire installation. Ensure the barricade is ballasted according to the manufacturer's recommendations to ensure stability during wind events and contact with pedestrians.

2. When the barricade is installed near motor vehicle traffic, ensure reflective sheeting is visible to motorists.

3. When pedestrian Type II barricades are used to close a non-motorized facility, ensure a sufficient number of barricade sections are used to block the entire width of the facility. The barricade may extend outside the edge of the non-motorized facility but must not be less than the full width of the facility.

4. If sections of multiple colored barriers are used (i.e. safety orange and white) install the sections such that the colors alternate to increase conspicuity.

5. Ensure pedestrian Type II barricades are not used to close a motor vehicle facility. Ensure these barricades are not used to guide pedestrian traffic on a motor vehicle facility in the presence of active traffic. This prohibition includes bicycle/shared use lanes or shoulders in the presence of active traffic.

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:

Pay Item	**Pay Unit**
Pedestrian Type II Barricade, Temp	Each

Pedestrian Type II Barricade, Temp, includes all labor, equipment, and materials to furnish, install, maintain, relocate, and remove one barricade section that is at least 43 inches wide. Additional payment will not be made if wider sections are provided. This includes all rails, supports, ballast, hinge points, reflective sheeting, and miscellaneous hardware needed to install and maintain a barricade section.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY PEDESTRIAN TYPE II CHANNELIZER

OFS:RAL 1 of 2 APPR:CAL:CT:05-06-16

a. Description. This work consists of furnishing, installing, maintaining, relocating, and removing temporary pedestrian channelizers as identified in the proposal or on the plans. Use temporary pedestrian channelizers to guide pedestrians along a temporary non-motorized facility, and to create separation of pedestrians from construction areas near existing facilities. Replace damaged temporary pedestrian Type II channelizers as directed by the Engineer.

b. Materials. Provide a temporary pedestrian channelizer that is crashworthy according to the *National Cooperative Highway Research Program Report 350* (NCHRP 350) or *Manual for Assessing Safety Hardware* (MASH), in addition to meeting the following requirements:

1. Ensure the channelizer is designed to interconnect to maintain continuous delineation along the entire installation. This includes provisions to accommodate non-linear alignment as well as variations in elevation.

2. Ensure the top surface of the channelizer is designed to function as a hand-trailing edge, and have a height between 32 and 38 inches. Ensure this top surface is designed to have a 2 inch horizontal gap between the top edge and the support (if so equipped), to allow for continuous hand-trailing without obstructions. Ensure the lower edge of the channelizer is no more than 2 inches above the surface of the non-motorized facility. Ensure the top edge of the bottom rail of the channelizer is a minimum of 8 inches above the surface of the non-motorized facility or the channelizer may have a solid continuous face. Finally, all features on the front face of the channelizers (the face in contact with pedestrians) must share a common vertical plane.

3. Equip both sides of the channelizer with bands of alternating 6-inch wide orange and white vertical stripes of reflective sheeting. Two bands of sheeting 6 inches tall and a minimum of 36 inches long containing at least two orange and two white stripes each are required. One band placed near the top and one near the bottom if the channelizer section has a solid face. If the channelizer consists of two rails, affix one band of sheeting to each rail. Ensure the stripes of reflective sheeting are aligned vertically. Ensure this sheeting meets or exceeds the requirements of *ASTM D 4956* Type IV sheeting.

c. Construction. Deploy the temporary pedestrian Type II channelizer in accordance with the manufacturer's recommendations, the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), the plans, and the following requirements:

1. Install the channelizer as shown on the plans and as directed by the Engineer. Interconnect all channelizers using hinge components if necessary to ensure a continuous detectable edge for the entire installation. Ensure the channelizers are ballasted according to the manufacturer's recommendations to ensure stability during wind events and contact with pedestrians.

2. When the channelizers are installed near motor vehicle traffic, ensure reflective sheeting is visible to motorists providing appropriate delineation for the pedestrian path.

3. If sections of multiple colored barriers are used (i.e safety orange and white), install the sections such that the colors alternate to increase conspicuity.

4. Ensure temporary pedestrian Type II channelizers are not used to guide pedestrian traffic on a motor vehicle facility in the presence of active traffic. This prohibition includes bicycle/shared use lanes or shoulders in the presence of active traffic. Ensure temporary pedestrian channelizers are not used to channelize motor vehicle traffic, or separate motor vehicle and pedestrian traffic.

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:

Pay Item	**Pay Unit**
Pedestrian Type II Channelizer, Temp	Foot

Pedestrian Type II Channelizer, Temp includes all labor, equipment, and materials to furnish, install, maintain, relocate and remove rails or wall sections, supports, ballast, and hinge points at the locations shown on the plans. This includes all rails or wall sections, supports, ballast, hinge points, and miscellaneous hardware needed to construct the channelizer or system of channelizers.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TEMPORARY SPECIAL PAVEMENT MARKINGS (TRANSVERSE, LEGEND, AND SYMBOL)

OFS:CGB 1 of 2 APPR:MB:CRB:04-10-17
FHWA:APPR:04-24-17

a. Description. This work consists of furnishing, installing, and disposing of temporary transverse, legend, and symbol special pavement markings in accordance with the contract and as directed by the Engineer. Where temporary special pavement markings are required in this contract, use Type R temporary wet reflective special markings if the markings applied during the project require removal during the life of the contract. Use Type NR temporary special markings if the markings applied during the project can remain in place or are located on pavement to be removed or replaced during construction, or if the manufacturer temperature requirements for temporary tape cannot be met.

b. Materials.

1. Temporary Special Markings - Wet Reflective, Type R, Tape. Provide Type R temporary special markings from the Qualified Products List (subsection 922.06.A of the Standard Specifications for Construction). Apply and remove tape in accordance with the manufacturer's instructions. The tape must remain flexible and conform to the texture of the pavement surface during use. All curved arrows, curved legends, and curved symbols must be precut or fabricated prior to being placed in the field.

2. Temporary Special Markings - Type NR, Paint. Provide Type NR temporary special markings as paint reflectorized with glass beads, from the Qualified Products List (subsection 922.06.A of the Standard Specifications for Construction).

c. Construction. Install the temporary pavement markings in accordance with Pavement Marking Special Detail PAVE-900 Series.

1. Temporary Special Markings - Wet Reflective, Type R, Tape. Between April 15 and November 1, place Type R wet reflective tape in accordance with the manufacturer's specifications for existing temperature and pavement conditions.

Utilizing 4 or 6 inch lines to create a symbol or stop bar is prohibited. Ensure the symbol is fabricated prior to being placed in the field and the stop bar is made out of 12 inch material.

Replace Type R wet reflective tape that fails, as directed by the Engineer. Special markings that fail due to improper installation per the manufacturer's specifications will not be paid for. The Engineer will document the failure and meet with the Contractor and/or supplier to discuss reason for failure. Payment will be as determined by the Engineer. Otherwise marking failure will be assumed to be damaged by traffic unless documented in the Inspector's Daily Report (IDR). Marking failure due to traffic or not clearly documented in an IDR, will be paid for at the contract unit price.

2. Temporary Special Markings - Type NR. Place Type NR markings in accordance with section 811 of the Standard Specifications for Construction. Use pavement marking Type NR temporary special markings when temporary pavement markings must be placed between November 2 and April 14, or if the removal of the temporary marking will occur after December 1.

Special markings that fail due to improper installation per the manufacturer's specifications will not be paid for. The Engineer will document the failure and meet with the Contractor and/or supplier to discuss reason for failure. Payment will be as determined by the Engineer. Otherwise marking failure will be assumed to be damaged by traffic unless documented in the Inspector's Daily Report (IDR). Marking failure due to traffic or not clearly documented in an IDR, will be paid for at the contract unit price.

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:

Pay Item	**Pay Unit**
Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Crosswalk	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 12 inch, Cross Hatching, (color)	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Stop Bar	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, (legend)	Each
Pavt Mrkg, Wet Reflective, Type R, Tape, (symbol)	Each
Pavt Mrkg, Type NR, Paint, __ inch, Crosswalk	Foot
Pavt Mrkg, Type NR, Paint, 12 inch, Cross Hatching, (color)	Foot
Pavt Mrkg, Type NR, Paint, __ inch, Stop Bar	Foot
Pavt Mrkg, Type NR, Paint, (legend)	Each
Pavt Mrkg, Type NR, Paint, (symbol)	Each

1. **Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Crosswalk; Pavt Mrkg, Wet Reflective, Type R, Tape, 12 inch, Cross Hatching, (color); Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Stop Bar; Pavt Mrkg, Wet Reflective, Type R, Tape, (legend);** and **Pavt Mrkg, Wet Reflective, Type R, Tape, (symbol)** include all materials, labor, and equipment necessary to provide, place, maintain (as noted), remove, and properly dispose of temporary pavement markings.

2. **Pavt Mrkg, Type NR, Paint, __ inch, Crosswalk; Pavt Mrkg, Type NR, Paint, 12 inch, Cross Hatching, (color); Pavt Mrkg, Type NR, Paint, __ inch, Stop Bar; Pavt Mrkg, Type NR, Paint, (legend);** and **Pavt Mrkg, Type NR, Paint, (symbol)** include all materials, labor, and equipment necessary to provide and place temporary pavement markings. Removal will be paid for separately under the respective pay items.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL SPECIFICATION
FOR
ERRATA TO THE 2012 STANDARD SPECIFICATIONS

Page	Subsection	Errata
N/A	N/A	In the very beginning of the book on the page where we list the MDOT publications included by reference delete the following manual. “Work Zone Safety and Mobility Manual”
N/A*	N/A	In the very beginning of the book on the page where we list the MDOT publications included by reference replace the Field Manual of Soil Engineering (out of Print) with the following manual. “Geotechnical Manual”
3	101.02	Modify the abbreviation reading “AIS” to read “AISI”.
4*	101.02	Delete the following abbreviations and the long forms MDELEG MDNRE Add the following abbreviations and the long forms MDNR Michigan Department of Natural Resources MDEGLE Michigan Department of Environmental Great Lakes, and Energy MDLARA Michigan Department of Licensing and Regulatory Affairs NESC National Electrical Safety Code
27	103.02.B.2	Change the last sentence of the first paragraph to read "For decreases below 75 percent, the maximum allowable payment for work performed, including any adjustment, will not exceed an amount equal to 75 percent of the original contract quantity times the contract unit price."
34	104.05	The first sentence of this subsection should read "If the Contractor performs unauthorized work (work performed without the inspections required by the contract, extra work performed without Department approval, work performed contrary to the inspectors direction, or work performed while under suspension by the inspector), the Engineer may reject the unauthorized work."
46	104.12	Add the following to the end of the first paragraph "The use of right-of-way in wetlands and floodplains, or the crossing of water courses by construction equipment is prohibited."
53	105.09	Add the following to the end of the second paragraph "Any specifically produced material not purchased by the Department, will remain the

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		Contractors and must be removed from the project prior to final acceptance."
56	107.02.B.2	This sentence should read "U.S.Army Corps of Engineers' Section 404, Dredge and Fill; and Section 10, Navigable Waterway."
56*	107.02.B	Add the subsection reading as follows: “3. U.S. Coast Guard Section 9, Navigable Waterway.” Change "MDNRE" to "MDEGLE" in this subsection.
64	107.12	Change the first sentence of the first paragraph to read: “For protection of underground utilities and in accordance with 2013 PA 174, the Contractor must notify Miss Dig at least 3 work days, excluding Saturdays, Sundays and holidays, before beginning each excavation in areas where public utilities have not been previously located.”
65*	107.15.A	Change "MDNRE" to "MDEGLE" in four instances in this subsection.
66	107.15.A.3	Add the following to the end of the paragraph "Note that a burn permit from the MDNR is required for any open burning whenever the ground is not snow covered. Any individuals that allow a fire to escape will be in violation of the Natural Resources and Environmental Protection Act and will be required to reimburse the costs of suppressing the wild fire."
67*	107.16	The third sentence should read "In State Forests, the Contractor must contact the local Unit Manager, Forest Management Division, MDNR, regarding the work to be performed within or adjacent to the forest land." Delete the last sentence of the first paragraph of this subsection.
80	108.08.F	Delete the second paragraph in its entirety.
80	108.08.G	Add the following new subsection: “G. The Contractor may propose and the Engineer may approve another equitable method, supported by an acceptable rationale to determine time extensions for any of the excusable delays listed in subsection 108.08.
83	108.10.C	Change the last sentence of the first paragraph to read: “The liquidated damages may contain one or more components of damages added together.”
83	108.10.C.1	In Table 108-1 delete the last row of the table and replace it with the following: ≥50,000,000 4,500
102	109.05.E.1	Change the second sentence of the third paragraph to read: “Provide the content specified in subsection 109.05.D.11 for the applicable items in this statement and as follows:”

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
107	150.04	Change the following pay item reading “Mobilization, Max __” to read “Mobilization, Max (dollar)” at nine locations throughout the subsection.
112	201.03.A.3.b	Change "MDNRE" to "MDNR" in three instances in this subsection.
123	204.04	Change the following pay item reading “Structures, Rem” to read “Structures, Rem (Structure No.)”
123	204.04	Change the following pay item reading “Concrete Barrier, Rem” to read “Conc Barrier, Rem”
150*	208.01	Change "MDNRE" to "MDEGLE" in this subsection.
180	308.03.A	Change the first sentence of the second paragraph to read: “Do not operate equipment required to place backfill directly on geotextile products.”
185	401.03.A	Change the first sentence of the second paragraph to read: Where unstable soil conditions, or obstructions other than rock, require excavation of the trench below the elevation detailed on the plans; undercut, backfill, and compact the trench as directed by the Engineer.
188	401.03.H	Change the second sentence of the paragraph to read “Jack steel pipes in place in accordance with subsection 401.03.G”.
189	401.03.N	Add the following sentence to the end of the first paragraph "Where possible, maintain the stream flow thru a temporary channel or temporary culvert." The second sentence of the second paragraph should read "Direct water from the dewatering operations through a filter bag before discharging to an existing drainage facility."
189	401.04	Change the fourth pay item from the end of the list to read as follows: “Culv, Reinf Conc Ellip, (shape) Cl __, (rise) inch x (span) inch”.
190	401.04	Change the fourth pay item from the end of the list to read as follows: “Steel Casing Pipe, __ inch, Tr Det __.”
195	402.03.C	Change the third sentence of the first paragraph to read as follows: “Wrap pipe joints, with a diameter greater than 24 inches, using geotextile blanket.”
200	402.04	Change the third pay item from the top of the list to read as follows: “Sewer, Cl __, __ inch, Jacked in Place”
200	402.04.A	Change the last sentence of the subsection to read as follows: “The unit price for **Sewer** and **Sewer, Reinf Conc, Ellip** includes the cost of excavation, backfill, geotextile blanket and mandrel testing.”

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
201*	402.04.H	Change the last sentence of the first paragraph to read "The Department will not make an adjustment in the pay items of **Minor Traf Devices** or **Traf Regulator Control**."
208	403.04.D.3	Change the sentence to read: “Removing and replacing pavement adjacent to the adjusted cover per Standard Plan R-37 Series.”
218	406.03.A.2	Change the first sentence of the first paragraph to read: “Design precast box culverts less than 10 feet in span length measured along the centerline of the roadway in accordance with current AASHTO LRFD Bridge Design Specifications and ASTM C 1577.” Add the following sentence to the end of the first paragraph: “Design precast box culverts greater than or equal to 10 feet in span length measured along the centerline of the roadway for HL-93 Modified live load.”
219	406.03.B	Change the first sentence of the first paragraph to read: “Submit shop drawings for culverts greater than or equal to 10 feet in span length measured along the centerline of the roadway to the Engineer, for review and approval in accordance with subsection 104.02.”
219	406.03.C.1	Change the second sentence of the first paragraph to read: “Before manufacture, perform load ratings on precast three-sided, arch or box culverts greater than or equal to 10 feet in span length measured along the centerline of the roadway, in accordance with the AASHTO Manual of Bridge Evaluation, Section 6, Part A, the Michigan Bridge Analysis Guide current at the time load rating is performed, and the Michigan Structure Inventory and Appraisal Guide.”
223	406.03.G	Add the following after the first sentence of the second paragraph: “Where possible, maintain the stream flow thru the existing channel, temporary channel, or temporary culvert.”
224	406.03.G	Replace the fifth paragraph of this subsection with the following: “The Contractor may use cast-in-place wing walls, headwalls, and aprons, as alternatives to precast wing walls, headwalls, and aprons. Attach cast-in-place wing walls or headwalls as shown on the shop drawings.”
225	406.03.G.2	Change the third sentence of the first paragraph to read: “Before placing the open-graded aggregate 34R, compact the coarse aggregate 6A using at least three passes of a vibrating plate compactor.”
226	406.03.G.2	Change the first sentence of the second paragraph of this subsection to read:

Page	Subsection	Errata
		"Fill the space between the box culvert joints during placement of box sections with closed-cell rubber extrusion type gaskets in accordance with ASTM C 990."
226	406.04.A.9	Change the sentence to read: “Providing plan modifications including design, additional plan quantities and pay items to accommodate any changes to the precast units as shown on the plans.”
226*	406.04.A	Add the following paragraph after the last paragraph of the subsection: “The substructure design is specific to the three-sided or arch culvert detailed on the plans. The Contractor must use approved MDOT service vendors qualified in Hydraulics, Geotechnical Engineering Services, and Short and Medium Span Bridges to perform the required design and plan modifications, as directed by the Engineer, if the Contractor selects a culvert shape different than shown on the plans.”
227	406.04.B	Add the following new item in the list of items in this subsection: 2. Headwalls, wingwalls, aprons, and curtain walls, precast or cast-in-place; Renumber the exist items 2 through 4 in this list to read 3 through 5. Delete existing item numbered 5 and replace with the following: 6. Inserts for bars and connection hardware; and Renumber the existing item 6 in this list to read 7.
227	406.04.B	Delete the first and second paragraphs following the list of items in this subsection and replace with the following: “The Department will pay separately for cast-in-place concrete, other than for culvert segments, wing walls, and headwalls; excavation; protective coating; providing and placing backfill material; by plan quantity in accordance with subsection 109.01.A.”
239	501.03.C.6	The first sentence of this subsection should read "Except as specified in subsection 501.03.C.4, removing HMA surface applies to removing HMA overlying a material designated for removal or that is required to remain in place."
247	501.03.O	Change footnote e in Table 501-5 to read: "Flushing severe enough to significantly affect surface friction (Friction Number <35)."
249	501.04.H	The first sentence of this subsection should read "The Engineer will measure, and the Department will pay for removing HMA surface, no greater than 12 inches thick, overlying a material designated for removal or that is required to remain in place, as **HMA Surface, Rem**."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		The second paragraph of this subsection should read "The Engineer will measure, and the Department will pay for removing HMA surface, greater than 12 inches thick, overlying a material designated for removal or that is required to remain in place, as **Pavt, Rem** in accordance with subsection 204.04."
257	503.03.E	Delete this subsection in its entirety.
265	504.03.E.3	Delete this subsection in its entirety.
269	504.04.A	This subsection should read "The unit prices for **Micro-Surface**, regardless of the type required, include cleaning existing pavement; applying a bond coat; temporary pavement markings; stationing; corrective action; and traffic control to complete corrective action."
299	601.04	In table 601-2 delete the row for Grade P-NC concrete in its entirety.
300	601.04	In table 601-2, the first sentence of footnote b. should read: “Use coarse aggregate 6A, 6AA or 6AAA for Grades P1, P2 and M.” In table 601-2, footnote c. should read: “The mix design basis for bulk volume (dry, loose) of course aggregate per unit volume of concrete is 72% for Grade P1; 74% for Grade P2.”
308	602.03.F	Note c. in Table 602-1 should read "Refer to Section D6 of the Materials Quality Assurance Procedures Manual for inspection procedure."
320	602.04.C.3	The last paragraph in this subsection should read "If the Engineer approves a substitution of a higher concrete grade for a lesser grade (e.g., P1 for P2), the Department will pay for the higher grade of concrete using the original bid and pay items of the lesser grade."
327	603.02	Change the second material in the list to read: “Concrete, Grade P-NC……..….603” Change the third material in the list to read: “Base Course Aggregate, 4G, 21AA, 22A……..902”
334	603.03.B.10	Change the last sentence of the second paragraph to read "Apply the required curing compound in two coats, at a rate of at least 1 gallon per 25 square yards for each coat."
342	603.04.G.3	Change "D1" to "W" in two instances in this subsection.
351	701.04	Replace Tables 701-1A and 701-1B with the Table 701-1 below.
362*	704.03.C	Change the last sentence in the first paragraph of this subsection to read: “The Engineer will consider approval after receiving applicable MDEGLE permits for the alternate method.”

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
372	705.03.C.1	Add the following sentence after the first paragraph of this subsection: “Do not drive piles within a radius of 25 feet of newly placed concrete until the concrete attains at least 75 percent of its specified minimum strength.”
374	705.03.C.2.c	Change the last sentence of the second paragraph to read “Drive test piles to the minimum pile length or practical refusal, whichever is greater”.
379	705.04	Change the fifth item down the list to read: “Pile, Galv (Structure No.)”
380	705.04	Change the last item in the list to read: “Pile Driving Equipment, Furn (Structure No.)”
383	706.02	The fourth paragraph following the list of materials should read "Provide AASHTO M 270, Grade 36 steel, meeting the requirements of ASTM A 786, galvanized in accordance with section 707, for expansion joint cover plates. Provide plates at least 3/8 inch thick. Use plates with a slip resistance equal to or greater than those meeting the requirements of ASTM A 786 and must be approved by the Engineer. Provide ASTM F 593 (Type 304) stainless steel, 3/4-inch or 1/2-inch diameter, flathead countersunk screws with 3/4-inch or 1/2-inch diameter inserts for use in expansion joint cover plates."
389	706.03.D.4.b	Change the first sentence of the fourth paragraph to read "Design forms, form supports, and attachments to carry dead loads, and resultant horizontal loads due to forming of cantilever overhangs."
390	706.03.E.4	Change the forth sentence of the first paragraph to read: “Use wire ties to secure all bar intersections for the top mat. Use wire ties to secure all bar intersections for other mats where the product of the length and width of bar intersection spacing exceeds 120 square inches.”
391	706.03.E.8	Change the first sentence of the second paragraph of this subsection to read: "Patch sawed or sheared ends and visible defects in accordance with ASTM A 775."
392	706.03.E.8	Change the last sentence of the third paragraph of this subsection to read: "Coat mechanical splices after splice installation in accordance with ASTM A 775 for patching damaged epoxy coating."
394	706.03.H.1	Delete the last paragraph on page 394 and replace it with the following: “Do not cast sidewalk, curb, or barrier pours until the deck concrete attains at least the minimum specified 7-day flexural or compressive strength, and after completion of the 7-day continuous wet cure. The

Page	Subsection	Errata
		forming of succeeding portions may occur, provided the wet cure is maintained."
406*	706.03.N.1.b	Add the following to the end of the last paragraph of the subsection: "Do not discontinue wet cure nor cast succeeding portions onto the bridge deck prior to completion of the 7-day two-phase continuous wet cure. Ensure excess or ponding cure water is removed prior to casting of succeeding structure portions."
416	707.03.C.1	Change the title of the subsection from "Shop Plans to read "Shop Drawings". Change the second sentence of this subsection to read: "Do not use design drawings in lieu of shop drawings."
426	707.03.C.17	Change the second sentence in the first paragraph of this subsection to read: "Tap oversized galvanized nuts in accordance with ASTM A 563 or AASHTO M 292 and meet Supplementary Requirement S1 of ASTM A 563 or AASHTO M 292."
430	707.03.D.7.b	Delete the first sentence of the last paragraph of this subsection.
430*	707.03.D.7.b	Change the title of the Table 707-4 to read: "Minimum Bolt Tension for ASTM F 3125 Grade A 325"
430	707.03.D.7.b	Change "104,000" to "103,000" in the last row under the column titled Minimum Bolt Tension.
431	707.03.D.7.c	Add the following sentence to the end of the first paragraph of this subsection: "If using impact wrenches, provide wrenches sufficient to tighten each bolt in approximately 10 seconds."
431*	707.03.D.7.c	Change the first sentence of the second paragraph to read: "Do not reuse ASTM F 3125 Grade A 325 bolts and nuts.."
434	707.04.A	Change the first sentence of the first paragraph of this subsection to read: "The Engineer will measure structural steel by the calculated weight of metal in the finished structure, excluding filler metal in welding, as shown on the shop drawings or working drawings."
438	708.03.A.2	Change the title of the subsection from "Shop Plans to read "Shop Drawings". Change the first sentence to read: "Submit shop drawings in accordance with subsection 104.02." Change the fourth sentence to read:

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		"Do not start production until the Engineer approves the shop drawings."
441*	708.03.A.11	Change the last sentence of the first paragraph to read "Cure concrete at temperatures from 70 °F to 150 °F until concrete attains the release strength shown on the shop drawings".
441	708.03.A.11	Change the fourth sentence of the fourth paragraph to read "Do not exceed a maximum concrete temperature of 150 °F during the curing cycle."
458	711.03.A	Change the first sentence in the first paragraph to read: "Shop drawings for structural steel and pipe railings are not required."
460	711.04.A	Change the second sentence of the first paragraph to read: "The unit price for **Bridge Barrier Railing** includes the cost of placing steel reinforcement, providing and placing concrete, constructing joints, and forming, finishing, curing and protecting the concrete."
461	711.04.F	The title of this subsection should read "**Reflective Marker, Permanent Barrier.**"
467	712.03.C	Add the following to the end of the third paragraph of the subsection: "Notify the Engineer of any saw cuts in the top flange. Saw cuts equal to or less than 1/32 inch deep in steel beams must be repaired by grinding, to a surface roughness no greater than 125 micro-inches per inch rms, and tapering to the original surface using a 1:10 slope. Saw cuts in excess of 1/32 inch deep in steel beams require a welded repair to be submitted to the Engineer for approval. Weld in accordance with subsection 707.03.D.8 and provide adequate notice to allow the Engineer to witness the repair work. Inspect and test all saw cut repairs (including grinding repairs) using ultrasonic testing in accordance with 707.03.D.8.c at no additional cost to the Department."
471	712.03.J	Add the following to the end of the second paragraph of the subsection: "Select adhesive anchor systems from the Qualified Products List."
471	712.03.J.1	Delete the first paragraph in this subsection and replace it with the following: "Propose complete details of drilling, cleaning, and bonding systems for anchoring reinforcement and submit for the Engineer's approval before use. The minimum embedment depth must be nine times the anchor diameter for threaded rod or bolt and twelve times the anchor diameter for reinforcing bar. Propose a drilling method that does not cut or damage existing reinforcing steel. Prepare at least three proof tests per anchor diameter and type in the same orientation in which they will be installed on the existing structure, on a separate concrete block, in the presence of the Engineer. The Engineer will proof test the proposed systems. The Engineer will base approval of the anchoring system on the following criteria:"
471	712.03.J.2	Change the third sentence of the first paragraph to read:

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		"Use a tension testing device for unconfined testing, in accordance with ASTM E 488."
473	712.03.L.2	Change the first sentence in the second paragraph of this subsection to read: "If using epoxy coated steel reinforcement, epoxy coat mechanical reinforcement splices in accordance with ASTM A 775."
473	712.03.L.3	Delete the existing first sentence in the first paragraph.
473	712.03.L.3	Change the third sentence of the first paragraph to read "Provide two test splices on the largest bar size."
473*	712.03.L.3	Change the sentence beginning "Demonstrate to the…. to read: "Demonstrate to the Engineer that splices have a tensile strength of 125 percent of the bar yield strength and high strength splices have a tensile strength of 150 percent of the bar yield strength."
488	713.02	Add the following as subsection 713.02.C: "C. **Structural Steel for Retrofitting and Welded Repairs.** Structural steel material used for retrofitting and welded repairs of primary members as defined in subsection 707.01.B must meet longitudinal Charpy V-Notch impact test requirements."
501	715.02	Add the following material reference above the two existing items: "Sealant for Perimeter of Beam Plates.....713"
508	715.03.D.1	Add the following sentence after the second paragraph of the subsection: "Apply sealant for perimeter of beam plates in accordance with subsection 713.03.F."
515	716.03.A	Delete the second paragraph of this subsection in its entirety. Change the last sentence of the last paragraph of this subsection to read: "Provide a primer dry film thickness for the top flange between 4 mils and 10 mils."
519	716.04	Change the second sentence of the first paragraph of this subsection to read: "The unit price for **Field Repair of Damaged Coating (Structure No.)** includes the costs of making field repairs to the shop applied coating system; prime coat surfaces and exposed surfaces of bolts, nuts, and washers; and repairing stenciling."
521	717.04.B	This subsection should read "The unit price for **Drain Casting Assembly** includes the cost of providing and installing the downspout and, if necessary, the lower bracket to the drain casting."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
522	718.02	Change the section number "906" in the third material in the list to read "919."
533	718.04	Delete the following pay item from the list: Temp Casing……Foot
533	718.04.B.2	Delete this subsection in its entirety.
533	718.04.B.3	Renumber this subsection as follows: “2. **Permanent Casing.”**
540	802.04	Change "Non reinf" in the last pay item of the list with "Nonreinf".
545*	803.04.E	Change the second sentence of the second paragraph to read: “The unit price for **Railing for Steps** includes the cost of providing, fabricating, installing, and grouting the railing.”
560	807.04	Delete the following pay item from the list: Guardrail Buffered End .....Each
560	807.04.B	Change the fifth paragraph of this subsection to read: “The Engineer will measure **Guardrail Salv** and **Guardrail, Mult, Salv** along the face of the rail (one face for multiple beams), including terminals and end shoes.”
567	808.04.C	Change the first paragraph of this subsection to read: "The Department will not pay separately for protective fence required in accordance with subsection 104.07."
569	809.04.A	Change the first sentence to read: “The unit price for **Field Office, Cl __** includes the cost of setup, providing access, grading, maintaining, plowing snow, and utility hook-up charges.”
570	809.04.B	Delete the existing second and third sentences in the first paragraph and replace them with the following: “The unit price for **Field Office, Utility Fees** includes the cost of monthly usage fees for electricity, gas, telephone service and charges, fuel for the stove, monthly water and sanitary service.”
570	809.04.B	Change the existing fourth sentence in the first paragraph to read: “The Department will reimburse the Contractor for monthly usage fees for electricity, gas, telephone, water and sanitary charges incurred by the Department.”
575	810.03.K	Change the subsection to read "K. **Drilled Piles for Cantilever and Truss Foundations.** Construct drilled piles for cantilever and truss foundations in accordance with section 718."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
578	810.03.N.2	Add the following sentence after the first sentence of the second paragraph on this page: "Mark each nut and bolt to reference the required rotation."
584	810.04	Delete the last pay item in the list: Truss Fdn Anchor Bolts, Replace…….Each
585	810.04.B.1	Change the second paragraph to read: "The unit prices for **Fdn, Truss Sign Structure Type __, __ inch Dia, Cased** and **Fdn, Cantilever Sign Structure Type __, __ inch Dia, Cased** include the cost of concrete, slurry, steel reinforcement, permanent casings, anchor bolts, excavation, and disposal of excavated material."
585	810.04.B.2	Change the second sentence of the first paragraph to read: "The unit prices for **Fdn, Truss Sign Structure Type __, __ inch Dia, Uncased** and **Fdn, Cantilever Sign Structure Type __, __ inch Dia, Uncased** include the cost of concrete, slurry, steel reinforcement, temporary casings, anchor bolts, excavation, and disposal of excavated material."
596	811.03.G	Delete this subsection in its entirety.
597*	811.03.H	Rename this subsection as follows: "G. **Raised Pavement Marker (RPM) Removal."**
597*	811.04	Change "Crosshatching" in the last pay item of the list on this page to "Cross Hatching".
598*	811.04	Delete the following pay items from the list: Pavt Mrkg, (material), 4 inch, SRSM, (color)……Foot Pavt Mrkg, (material), 4 inch, SRSM, 2nd Application, (color)……Foot Add the following pay items to the list: "Pavt Mrkg, Polyurea, (legend)……Each Pavt Mrkg, Polyurea, (symbol)……Each" Change the sixth item down the list to read: "Pavt Mrkg, Polyurea, __ inch, Cross Hatching, (color)" Change the eleventh item down the list to read: "Rem Curing Compound, for Longit Mrkg, __ inch……Foot"
599	811.04.B	Delete this subsection in its entirety.
599	811.04	Rename the following subsections as follows: "B. **Call Back.** C. **Pavement Marking Removal.** D. **Material Deficiency."**

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
602	812.03.D	Change the first sentence to read "Provide and maintain traffic control devices meeting the requirements in the ATSSA Quality Guidelines for Work Zone Traffic Control Devices and Features."
603	812.03.D.1	The last sentence on this page should read "Lay the sign behind the guardrail, with the uprights pointing downstream from the traffic, and place the support stands and ballasts close to the guardrail."
604	812.03.D.2	The first sentence of the fourth paragraph should read "Do not use burlap or similar material to cover Department or Local Government owned signs."
604	812.03.D.5	The fifth sentence of the first paragraph should read "Do not mix drums and cones within a traffic channeling sequence."
605	812.03.D.6.b	Change the first sentence of the first paragraph to read: "The Department will allow the nighttime use of 42-inch channelizing devices, in the tangent area only, on CPM and pavement marking of any duration where the use of plastic drums restricts proposed lane widths to less than 11 feet, including shy distance."
605	812.03.D.7	Add the following sentence after the first sentence of the first paragraph: "Place a shoulder closure taper in advance of the lighted arrows placed on the shoulders."
607	812.03.D.9	Delete the second paragraph of this subsection and replace with the following: "Link sections together to fully engage the connection between sections. Maintain the barrier with end-attachments engaged and within 2 inches of the alignment shown on the plans."
608	812.03.D.10.b	Delete the second sentence of the second paragraph of this subsection beginning with "Install sand module attenuators…"
608	812.03.D.10.b	Add the following sentence after the second paragraph of this subsection: "Install impact attenuation devices as shown on the plans, as directed by the Engineer, or both."
609	812.03.D.10.e	Delete the second paragraph of this subsection.
612	812.03.D.13	Delete the third paragraph of this subsection and replace it with the following: "Perform work on signals in accordance with the contract and to the requirements of NEMA TS-5 standard for those items not identified in the contract."
613*	812.03.D.14.a.iii	Change the sentence in this subsection to read "Place a terminal end shoe, in accordance with Standard Plan R-66-Series, and of appropriate type based on existing guardrail, on both blunt guardrail ends."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
615	812.03.F	The second sentence of the second paragraph of this subsection should read: "The Contractor may use a Type R temporary pavement marking cover, per subsection 812.03.D.12 when authorized by the Engineer."
616	812.03.F.2	The last sentence of the first paragraph should read: "If the removal equipment cannot collect all removal debris, operate a self-propelled sweeper capable of continuously vacuuming up the removal debris immediately behind the removal equipment."
617	812.03.G.3	The first sentence of the second paragraph should read: "Sweep the shoulder and remove debris prior to placing traffic on the shoulder and throughout the time the shoulder is used to maintain traffic."
617	812.03.G.4.a	Delete "48 inch by 48 inch" from the first sentence of this subsection.
618*	812.03.G.7	The first sentence of the first paragraph should read: "Clean barrier reflectors, plastic drums, 42 inch channelizing devices, tubular markers, signs, barricades, and attached lights in operation on the project to ensure they meet required luminosity."
619	812.03.G.8	The second sentence of the third paragraph from the end of the subsection should read: "Illuminate traffic regulator stations at night per subsection 812.03.H."
621	812.03.I.6	Delete "48 inch by 48 inch" from the second sentence of this subsection.
622*	812.03.J	The second paragraph should read "Apply one 2-inch wide horizontal stripe of red and white conspicuity tape along at least 50 percent of each side of, and across the full width of the rear of the vehicle or equipment."
622	812.04	Change the second item down the list to read: "Traf Regulator Control" Change the sixth item down the list to read: "Sign Cover, Type I"
626	812.04.I	Change the reference "812.04.E" in the first sentence to "812.04.D".
628	812.04.M.4	Add the following as the first sentence of this subsection: "The Engineer will not measure a temporary barrier ending move as **Conc Barrier Ending, Temp, Relocated** if it involves work defined in subsection 812.04.M.3."
629	812.04.N.1	Change the reference "811.04.D" in the second paragraph of this subsection to read "811.04.C".
630	812.04.S	Change the first sentence to read: "The Department will not make additional payments for traffic regulating, signing, arrow boards, and lighting systems for traffic regulator stations operated at night due to a temporary PTS system failure."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
634	813.03.C.3	Change the reference "903.07.A" in the paragraph of this subsection to read "907.07.B".
638	814.03.D	Change the second sentence to read: “Place the HMA mixture on the prepared base to a thickness of at least 2 inches, and to at least 220 pounds per square yard.”
646	815.04	Change the first, third and fourth pay items in the list to read: “Site Preparation, Max (dollar) ..... Lump Sum Watering and Cultivating, First Season, Min (dollar)..... Lump Sum Watering and Cultivating, Second Season, Min (dollar) ..... Lump Sum”
646	815.04.C.1	Change the following pay item reading: “Watering and Cultivating, First Season, Min. (dollar)” to read “Watering and Cultivating, First Season, Min (dollar)” at two locations throughout the subsection.
646	815.04.C.1.b	Delete this subsection in its entirety.
646	815.04.C.1.c	Rename this subsection to read: “b. Removal and disposal of unacceptable plants.”
646	815.04.C.2	Change the following pay item reading: “Watering and Cultivating, Second Season, Min. (dollar)” to read “Watering and Cultivating, Second Season, Min (dollar)” at three locations throughout the subsection.
647	815.04.C.2	Change the last paragraph of this subsection to read: “For each unacceptable plant identified, the Engineer will calculate a 50 percent reduction in the unit price for the relevant **(Botanical Name)** pay item, and will process a negative assessment for each unacceptable plant for that amount.”
650	816.03.B	Delete the first paragraph of this subsection and replace with the following: "Conduct soil tests when called for in the contract or when directed by the Engineer. Provide soils tests results to the Engineer when testing is required. Provide and place fertilizer as indicated below and as indicated in the soils tests, if required."
650	816.03.B.1	Change the sentence to read: "For Class A fertilizer, evenly apply 176 pounds of chemical fertilizer nutrient per acre on a prepared seed bed."
650	816.03.B.2	Change the sentence to read: "For Class B fertilizer, evenly apply 120 pounds of chemical fertilizer nutrient per acre on a prepared seed bed."
650*	816.03.B.3	Change the sentence to read: "For Class C fertilizer, evenly apply 80 pounds of chemical fertilizer nutrient per acre on established turf."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
663*	819.01	Delete the first paragraph in the subsection and replace it with the following: “This work consists of providing operating electrical and lighting units; removing, salvaging, or disposing of existing electrical and lighting components; excavating, backfilling, restoring the site in accordance with section 816; and disposing of waste excavated materials. Complete this work in accordance with this section, section 820, and the contract and to the requirements of the NEC, the National Electrical Safety Code, and the MDLARA for those items not identified in the contract.” Change the third sentence of the second paragraph in this subsection to read: “Contact the MDLARA for electrical service inspection and pay the applicable fees.”
671	819.03.F.1	Change the paragraph to read: “Install light standard foundations as shown on the plans and the standard plans, as applicable.”
673	819.03.G.4.b	Change the last sentence of the first paragraph to read: "Tighten the anchor bolts to a snug tight condition as described in the third paragraph of subsection 810.03.N.2 ensuring the lock washer is completely compressed."
673	819.03.G.4.b	Delete the first two sentences of the second paragraph and replace with the following: "Tighten bolts connecting the pole to the frangible base to a snug tight condition. Snug tight is the tightness attained by a few impacts of an impact wrench, or the full effort of a person using an ordinary spud wrench. The lock washers must be fully compressed."
678	819.04	Change the ninth pay item in the list to read: “DB Cable, 600V, 1/C# (size)..... Foot”
678*	819.04	Delete the last item in the list on this page reading: “DB Cable, in Conduit, 600 Volt, (number) 1/C# (size)..... Foot”
679	819.04	Change the first pay item in the list to read: “DB Cable, in Conduit, 600V, 1/C# (size)..... Foot”
679	819.04	Change the sixth pay item in the list to read: “Cable, P.J., 600V, 1, (size) ..... Foot”
679	819.04	Change the second pay item from the bottom of the list to read: “Conc Pole, Fit Up, (type) ..... Each”
680	819.04	Change the first paragraph to read: “Unless otherwise required, the unit prices for the pay items listed in this subsection include the cost of excavation, granular material, backfill,

Page	Subsection	Errata
		and disposal of waste excavated material. If the contract does not include pay items for restoring the site in kind in accordance with section 816, the Department will consider the cost of restoration included in the pay items listed in this subsection."
680	819.04.A	Add the following paragraph after the first paragraph of the subsection. "The unit prices for **Conduit, Rem** include the cost of removing the type, number, and size of conduit shown on the plans." Change the third paragraph of the subsection to read: "The unit prices for **Conduit, (type), __ inch** and **Conduit, DB, (number), __ inch** include the cost of installing the type, number, and size of conduit shown on the plans, and installing marking tape."
681	819.04.B	Change the last paragraph of the subsection to read: "The unit price for **DB Cable, in Conduit, Rem** includes the cost of removing all cables from the existing conduit measured per lineal foot of conduit."
681	819.04.C	Change the first paragraph of the subsection to read: "The unit prices for **Cable, Rem** and **Cable, (type), Rem** include the cost of dead ending, circuit cutting, installing guying, work required to leave circuits operable, and disposing of the removed cables, wire, hardware, and other appurtenances."
681	819.04.D	Change the first paragraph of the subsection to read: "The unit price for **Cable, Pole, (type), Disman** includes the cost of dismantling and off-site disposal of the following:"
685	820.01.D	Change the sentence to read: "Excavate, backfill, restore the site in kind in accordance with section 816, and dispose of excess or unsuitable material;"
688	820.03.C	Change the seventh paragraph of this subsection to read: "Tighten top anchor bolt nuts, snug, in accordance with the first four paragraphs of subsection 810.03.N.2, except beeswax will not be required."
696	820.04	Add the following pay items to the list: "Pedestal, Pushbutton, Alum……Each Pedestal, Pushbutton, Rem……Each"
697	820.04.A.2	Change the sentence to read: "If the contract does not include pay items for restoring the site in kind in accordance with section 816, the Department will consider the cost of restoration included in the pay items listed in this subsection."
698	820.04.B	Delete the second paragraph of this subsection found on this page.
698	820.04.C	Change "**Fdns**" to read "**Fdn**" in four instances in this subsection.

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
701	820.04.J.3	Change the sentence to read: "Installing wires in the saw slots and to the handholes;"
701.	820.04.J	Add the following as a new subsection: "7. A 3/4 inch minimum flexible conduit (non-metallic and rated for underground use) from the pavement to the handhole."
706	821.01.B	Change the website address listed after the second paragraph on this page to read: "http://www.ngs.noaa.gov/heightmod/GuidelinesPublications.shtml"
711	822.03.B	Change the second paragraph to read: "If corrugations are required on concrete shoulders and the method of installation is not shown on the plans or directed by the Engineer, construct corrugations by grinding, or cutting."
718*	823.03.U	Change "MDNRE" to "MDEGLE" in four instances in this subsection.
720	823.04	Change the pay item seventh from the bottom of the list to read: "Water Shutoff, Adj, Temp, Case __"
730	824.03.Q	Change the third sentence of the fourth paragraph to read: "Ensure placement of monumentation in accordance with section 821."
730	824.03.Q	Change the first sentence of the last paragraph to read: "The Department will not pay for work dependent on lost or destroyed stakes until the Contractor replaces the stakes."
732	824.04	Change the first sentence of the first paragraph following the list of pay items to read: "If the Engineer determines the Contractor will perform staking as extra work, the Department will pay for staking in accordance with section 103."
733	824.04	Change the left column header in Table 824-2 to read: "**Percent of Original Contract Amount Earned"**
739	902.02	Change the last aggregate testing description to read: "Determining Specific Gravity and Absorption of Fine Aggregates……..MTM 321"
742	902.03.C.1.a	Change the sentence to read: "Coarse aggregate includes all aggregate particles greater than or retained on the 3/4-inch sieve."
742	902.03.C.2.a	Change the sentence to read: "Intermediate aggregate includes all aggregate particles passing the 3/4-inch sieve through those retained on the No. 4 sieve."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
742	902.03.C.2.b.iii	Change the sentence to read as follows: “Maximum Loss by Washing per MTM 108 of 3.0 percent”.
744	902.07	Delete the fourth paragraph of the subsection and replace it with the following: “The Engineer will only allow the use of granular material produced from crushed portland cement concrete for embankment and as trench backfill for non-metallic culvert and sewer pipes without associated underdrains. However, granular material produced from crushed portland cement concrete is not permitted as swamp backfill, nor within the top 3 feet below subgrade regardless of the application.
746*	902.11	Change the Item of Work by Section Number column in Table 902-1 for the 6AA row to read: "406, 601, 602, 706, 708, 806". Change the Item of Work by Section Number column in Table 902-1 for the 6A row to read: "206, 401, 402, 406, 601, 602, 603, 706, 806". Change the Item of Work by Section Number column in Table 902-1 for the 34R row to read: "401, 404, 406".
751*	902.11	Replace Table 902-6 with the Table 902-6 below.
751	Table 902-7	Under the Material column in the fourth row change the "FA2" to read "2FA".
751	Table 902-7	Under the Material column in the fifth row change the "FA3" to read "3FA".
752	Table 902-8	Under the Material column in the fourth row change the "FA2" to read "2FA".
752	Table 902-8	Under the Material column in the fifth row change the "FA3" to read "3FA".
761	Table 904-2	Delete the footnote f and any other reference to footnote f from the table.
767	905.03	Change the first sentence of the first paragraph to read: “Deformed bars, must meet the requirements of ASTM A 706, ASTM A 615, or ASTM A 996 (Type R or Type A only) for Grade 60 steel bars, unless otherwise required”.
767*	905.03	Change the first sentence of the second paragraph to read: “Unless otherwise specified, spiral reinforcement must meet the requirements of plain or deformed Grade 40 steel bars of ASTM A 615, ASTM A 996 (Type A), or the requirements of cold-drawn wire of ASTM A 1064”.
767	905.03	Change the first sentence of the third paragraph to read: “Bar reinforcement for prestressed concrete beams must meet the requirements of ASTM A 996 (Type R) for Grade 60 steel bars, except

Page	Subsection	Errata
		the Engineer will allow bar reinforcement that meets the requirements of ASTM A 615 or ASTM A 996 (Type A) for Grade 40 steel bars for stirrups in prestressed concrete beams”.
768	905.03.C	Change the first sentence in the subsection to read: "Epoxy coated steel reinforcement, if required, must be coated in accordance with ASTM A 775, with the following exceptions and additions."
768	905.03.C.3	Change the first sentence of this subsection to read: "Include written certification that the coated reinforcing bars were cleaned, coated, and tested in accordance with ASTM A 775 with the coating applicator."
768	905.05	Change the first sentence of the first paragraph to read: “Deformed steel bars must meet the requirements of ASTM A 706 or the requirements for Grade 40, Grade 50, or Grade 60 of ASTM A 615 or ASTM A 996 (Type R or Type A only)”.
768	905.06	Delete this subsection in its entirety and replace it with the following: "Deformed wire fabric for prestressed concrete and fabric for concrete pavement reinforcement must meet the requirements of ASTM A 1064 and fabricated as required."
772*	906.07	Change the first paragraph to read: "High-strength bolt fasteners for structural joints must meet the requirements of ASTM F 3125 Grade A 325 Type 1 bolts. High-strength nuts for structural joints must meet the requirements of ASTM A 563 Grade DH or AASHTO M 292 Grade 2H. High-strength washers for structural joints must meet the requirements of ASTM F 436 Type 1 for circular, beveled, clipped circular, and clipped beveled washers." Change the second sentence of the second paragraph of this subsection to read: "Galvanized nuts must be tapped oversize in accordance with ASTM A 563 and meet Supplementary Requirements S1, Lubricant and Rotational Capacity Test for Coated Nuts and S2, Lubricant Dye."
777*	907.03.D.2.a	Change the first sentence of the second paragraph to read: “Angle sections must be nominal 2½ inch by 2½ inch by ¼ inch.”
777*	907.03.D.2.b	Change the first sentence of the first paragraph to read: “Angle section braces must be nominal 1¾ inch by 1¾ inch by ¼ inch or nominal 2 inch by 2 inch $^{3}/_{16}$ inch.”
782	908.04	Change the first sentence of the first paragraph of this subsection to read: "Steel castings for steel construction must meet the requirements of ASTM A 148 for Grade 60/90 carbon steel castings, as shown on the plans, unless the Engineer approves an alternate in writing."

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
784*	908.09.C	Change this subsection to read: “C. **Hardware.** Railing anchor studs must meet the requirements of ASTM A 449 Type 1. Heavy hex nuts must meet the requirements of ASTM A 563. Bolts, used as rail fasteners, must meet the requirements of ASTM F 3125 Grade A 325, Type 1. Where called for, round head bolts must meet the requirements of ASTM A 449 Type 1. The material for the railing hand hole screws must meet the requirements of ASTM A 276, Type 304. All nuts must meet the requirements of ASTM A 563 Grade DH or AASHTO M 292 Grade 2H. All flat washers must meet the requirements of ASTM F 436. Lock washers must be steel, regular, helical spring washers meeting the requirements of ANSI B18.21.1 - 1972. Bolts, nuts, washers and other hardware must be hot-dip galvanized in accordance with AASHTO M 232. Galvanized nuts must be tapped oversize in accordance with ASTM A 563, and meet Supplementary Requirements S1, Lubricant and Rotational Capacity Test for Coated Nuts, and S2, Lubricant Dye.”
784	908.11.A	Change the first sentence of the first paragraph to read: “Steel beam sections, backup elements, terminal end shoes, and special end shoes must meet the requirements of AASHTO M 180, for Class A guardrail.”
785*	908.11.B	Change the second paragraph to read: "Bolts, nuts, and round washers for guardrail, other than at bridge barrier railings, must meet the requirements of ASTM A 307 (Grade A), ASTM A 563 (Grade A with Supplementary Requirements S1 of ASTM A 563), and ASTM F 436, respectively." Change the third paragraph to read: "Washers, other than round washers, for guardrail must meet the requirements for circular washers in ASTM F 436 except that the dimensions must be as shown on the plans." Change the fifth paragraph to read: "Bolts, nuts, and washers for connections at bridge barrier railings must conform to ASTM F 3125 Grade A 325 Type 1 galvanized high-strength structural bolts with suitable nuts and hardened washers."
787	908.14.B	Add the following sentence to the end of the third paragraph of this subsection: "Exposed threaded ends of anchor bolts must be galvanized a minimum of 20 inches." Change the sixth paragraph in this subsection to read: "Provide washers meeting the requirements of ASTM F 436 for circular washers."
787	908.14.B	Change the second sentence of the fourth paragraph to read “After coating, the maximum limit of pitch and major diameter for bolts with a

Page	Subsection	Errata
		diameter no greater than 1 inch may exceed the Class 2A limit by no greater than 0.021 inch, and by no greater than 0.031 inch for bolts greater than 1 inch in diameter".
787*	908.14.C	Change the first paragraph to read "Provide either four or six high strength anchor bolts per the contract plans, meeting the mechanical requirements of ASTM F 1554, for Grade 105, with each standard. Anchor bolts for traffic signal strain poles must meet the requirements of subsection 908.14.B with the following exceptions and additions:"
789	909.03	Change the second sentence of the second paragraph to read: "As an alternative to the AASHTO M 36 requirements for metal pipe, the Contractor may use gasket material meeting the low temperature flexibility and elevated temperature flow test requirements of ASTM C 990, excluding the requirements for softening point, flashpoint and fire point."
793	909.06	Change the first sentence of the second paragraph of this subsection to read: "Provide Corrugated Polyvinyl Chloride Pipe (CPV) and required fittings meeting the requirements of AASHTO M 304."
793*	909.05.D	Change the second sentence of the paragraph to read "Provide a continuous welded joint to create a watertight casing that is capable of withstanding handling and installation stresses. Perform field welding by the SMAW process using E7018 electrodes."
794*	909.08.A	Change the first sentence to read: "Provide bridge deck downspouts of PE pipe meeting the requirements of ASTM F 714, PE 4710, DR 26."
804	Table 909-9	In the note area at the bottom of the table change the designation of the second note from "c." to "b.".
811	910.04	Add the following sentence to the end of this subsection: "Fabricate silt fence according to subsection 916.02."
814	Table 911-1	In the 4th row of the 5 rows in the table change the Property listed as "Total Organic Content (TOC)" to read "Total Organic Carbon (TOC)".
829*	912.08.K	Replace Table 912-10 with the Table 912-10 below.
833*	913.03.B	Change the first sentence of the first paragraph to read: "Clay brick, to construct manholes, catch basins, and similar structures, must meet the requirements of ASTM C 32, for Grade MS."
837*	914.04	Add the following as subsection 914.04.C: "C. **Lubricant-Adhesive for Neoprene Joint Seals**. The lubricant-adhesive must be a single-component moisture-curing polyurethane and aromatic hydrocarbon solvent mixture meeting ASTM D 2835, Type

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		I. Ship in containers plainly marked with the lot or batch number of the material and date of manufacture. Store at temperatures between 58 and 80°F. Do not exceed 12 months shelf-life prior to use."
840	914.08	Change the first sentence of the second paragraph to read: "Straight tie bars for end-of-pour joints must consist of bars of the diameter and length shown on the plans meeting the requirements of ASTM A 615, ASTM A 706, or ASTM A 996 (Type R or Type A only)".
840*	914.09.A	Change the first sentence of the first paragraph to read: "Straight tie bars for longitudinal pavement joints must consist of bars of the diameter and length shown on the plans meeting the requirements of ASTM A 615, ASTM A 706, or ASTM A 996 (Type R or Type A only)".
840	914.09.B	Change the first sentence of the first paragraph to read: "Bent tie bars for bulkhead joints must consist of bars of the diameter and length shown on the plans."
841*	914.13	In the first sentence of this subsection change "ASTM D 1248, for Type III, Class B" to read "ASTM D 4976, Group 2, Class 4, Grade 4".
844	916.01.A	Change the first sentence to read: "Cobblestone must consist of rounded or semi-rounded rock fragments with an average dimension from 3 inches to 10 inches."
845	916.01.D.1	Change the second sentence to read: "Checkdams for ditch grades 2 percent or greater must be constructed using cobblestone or broken concrete ranging from 3 inches to 10 inches in size."
851*	917.10.B.1	Delete the paragraph and replace it with the following: "1. **Class A.** Provide and apply Class A chemical nutrient fertilizer either according to MSU Soil Testing Lab Recommendations for Phosphorus Applications to Turfgrass, except the maximum single application rate of nutrient will be 48 pounds per acre, when soil tests are required or as indicated in subsections 917.10.B.1.a and 917.10.B.1.b."
851	917.10.B.1	Add the MSU Soil Testing Lab Recommendations for Phosphorus Applications to Turfgrass, found below, after the first paragraph of this subsection.
853	917.15.B.1	Change the second sentence of the subsection to read: "The net must meet the requirements of subsection 917.15.D and be capable of reinforcing the blanket to prevent damage during shipping, handling, and installation."
857	918.01	Add the following two paragraphs following the first paragraph of this subsection: "Wall thickness and outside diameter dimensions must conform to ASTM D 1785 for smooth-wall schedule 40 and 80 PVC conduit

Page	Subsection	Errata
		material. The Department will allow no more than 3 percent deviation from the minimum wall thickness specified. Wall thickness range must be within 12 percent in accordance with ASTM D 3035 for smooth-wall coilable schedule 40 and 80 PE conduit.”
858	918.01.E	Delete the first three sentences of the second paragraph shown on page 858.
863	918.06.F.1	Delete the third paragraph in this subsection in its entirety and replace it with the following: "Provide smooth or deformed welded wire fabric in accordance with ASTM A 1064."
864	918.07.C	Change the first sentence of the first paragraph to read: “Provide anchor bolts, nuts, and washers meeting the requirements of subsection 908.14.A and subsection 908.14.B.”
864	918.07.C	Delete the second sentence of the second paragraph.
864	918.07.C	Change the third sentence to read: “Provide anchor bolts threaded 4 inches beyond the anchor bolt projection shown on the plans.”
867	918.08.C	Change the last sentence of the first paragraph on this page to read: “Galvanize bolts, nuts, washers, and lock washers as specified in subsection 908.14.B.”
867	918.08.C	Change the last sentence of the subsection to read: “Provide each frangible base with manufacturer access covers as shown on the plans.”
867*	918.08.D	Delete this subsection in its entirety and replace with the following: "Provide galvanized anchor bolts, studs, nuts, couplings, and washers in accordance with subsection 908.14."
879	918.10.J	Change the third sentence of the second paragraph of this subsection to read: "Provide anchor bolts and associated nuts, washers, and hardware meeting the requirements of subsection 908.14."
887	919.06	Change the second paragraph to read: “Shims must be fabricated from brass shim stock or brass strip meeting the requirements of ASTM B 36, for copper alloy UNS No. C26000, half-hard rolled temper, or fabricated from galvanized sheeting meeting the requirements of ASTM A 653, for Coating Designation G 90.”
887	919.07.C	Change the sentence to read:

Page	Subsection	Errata
		"Galvanized high-strength steel bolts, nuts, and washers for connecting arm connection flanges must meet the requirements of subsection 906.07."
903	921.03.D	Delete the last three sentences of the first paragraph of this subsection.
914	921.05.D	Change the first sentence of this subsection to read: "Provide anchor bolts meeting the requirements of subsection 908.14.C, including elongation and reduction of area requirements."
916	921.07	Change the first sentence of the first paragraph to read: "Provide LED case signs internally illuminated by LEDs and changeable message case signs internally illuminated with LED light sources."
936	922.04.B	In the first sentence of the first paragraph change the "R-52" to "R-126".
936	922.04.B	Add the following to the end of the first paragraph: "Hardware used to connect the end section to the barrier must meet the requirements of NCHRP 350 or MASH (Test Level 3 or higher)."
936	922.04.B	In the first sentence of the second paragraph delete "R-52".
936	922.04.B	Change the fourth paragraph of this subsection to read as follows: For all endings requiring impact attenuators provide a NCHRP-350 Test Level 3 or MASH Test Level 3 approved impact attenuation system, unless otherwise approved by the Engineer.
952	Pay Item Index	Change the following pay items to read: "Conc Barrier, Rem.....123 204" "Conc Pole, Fit Up, (type) .....679 819"
953*	Pay Item Index	Delete the following pay item reading: "DB Cable, in Conduit, 600 Volt, (number) 1/C# (size).....678 819"
957	Pay Item Index	Delete the following pay item from the list: Guardrail Buffered End 560 807
960	Pay Item Index	Change the following pay item to read: "Mobilization, Max (dollar).....107 150"
961	Pay item Index	Delete the following pay items from the list: Pavt Mrkg, (material), 4 inch, SRSM, (color)……598……811 Pavt Mrkg, (material), 4 inch, SRSM, 2nd Application, (color)……598…..…811
961	Pay Item Index	Change the following pay items in the list to read: Pavt Mrkg, Ovly Cold Plastic, 12 inch, Cross Hatching, (color) Pavt Mrkg, Polyurea, __ inch, Cross Hatching, (color) Add the following pay items to the list:

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Page	Subsection	Errata
		"Pavt Mrkg, Polyurea, (legend)……598…….811 Pavt Mrkg, Polyurea, (symbol)……598…….811 Pedestal, Pushbutton, Alum……696…….820 Pedestal, Pushbutton, Rem……696…….820"
962	Pay Item Index	Change the following pay items in the list to read: "Pile Driving Equipment, Furn (Structure No.) Pile, Galv (Structure No.)"
963	Pay Item Index	Change the following pay item to read: "Rem Curing Compound, for Longit Mrkg, __ inch .....598 811"
964	Pay Item Index	Change the following pay item to read: "Sewer, Cl __, __ inch, Jacked in Place.....200 402" "Sign Cover, Type I.....622 812"
965*	Pay Item Index	Change the following pay item in the list to read: "Steel Casing Pipe, __ inch, Tr Det __ Site Preparation, Max (dollar) .....646 815"
966	Pay Item Index	Change the following pay item to read: "Structures, Rem (Structure No.).....123 204"
966	Pay Item Index	Delete the following pay item form the list; Temp Casing……...533…..…718
967*	Pay Item Index	Delete the following pay item from the list; Truss Fdn Anchor Bolts, Replace……...584…..…810
967	Pay Item Index	Change the following pay item in the list to read: "Traf Regulator Control"
968*	Pay item Index	Change the following pay item in the list to read: "Water Shutoff, Adj, Temp, Case __ Watering and Cultivating, First Season, Min (dollar).....646 815 Watering and Cultivating, Second Season, Min (dollar) .....646 815"
993	General Index	Change "Shop Plans (see Plans and Working Drawings)" to read "Shop Drawings (see Plans and Working Drawings)".

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Table 701-1
Concrete Structure Mixtures

Concrete Grade (e,h)	Section Number Reference (i)	Cement Content per cyd (b,c)		Slump (inches)				Minimum Strength of Concrete (f)					
					Type MR, F, or G Admixtures (g)			Flexural (psi)			Compressive (psi)		
		lb	sack	Type A, D or no Admixture	Before Admixture	After Admixture (Type MR)	After Admixture (Type F or G)	7 Day	14 Day	28 Day (Class Design Strength)	7 Day	14 Day	28 Day (Class Design Strength)
D (a)	706, 711, 712	658 (d)	7.0	0 - 3	0 - 3	0 - 6	0 - 7	625	700	725	3,200	4,000	4,500
S1	705	611	6.5	3 - 5	0 - 3	3 - 6	3 - 7	600	650	700	3,000	3,500	4,000
T	705, 706	611	6.5	3 - 7	0 - 4	3 - 7	3 - 8	550	600	650	2,600	3,000	3,500
S2 (a)	401, 705, 706, 712, 713, 801, 802, 803, 810	564	6.0	0 - 3	0 - 3	0 - 6	0 - 7	550	600	650	2,600	3,000	3,500
		526 (d)	5.6										
S3	402, 403, 803, 804, 806	517	5.5	0 - 3	0 - 3	0 - 6	0 - 7	500	550	600	2,200	2,600	3,000
		489 (d)	5.2										

a. Unless otherwise required, use Coarse Aggregate 6AA or 17A for exposed structural concrete in bridges, retaining walls, and pump stations.
b. Do not place concrete mixtures containing supplemental cementitious materials unless the local average minimum temperature for the next 10 consecutive days is forecast to be above 40 °F. Adjustments to the time required for opening to construction or vehicular traffic may be necessary. Cold weather protection may be required, as described in the quality control plan. The restriction does not apply to Grade S1 concrete in foundation piling below ground level or Grade T concrete in tremie construction.
c. Type III cement is not permitted
d. Use admixture quantities specified by the Qualified Products Lists to reduce mixing water. Admixture use is required for Grade D, Grade S2, and Grade S3, concrete with a reduced cement content. Use a water-reducing retarding admixture at the required dosage for Grade D concrete to provide the setting retardation required. When the maximum air temperature is not forecast to exceed 60 °F for the day, the Contractor may use a water-reducing admixture or a water-reducing retarding admixture. Ensure Grade D concrete in concrete diaphragms contains a water-reducing admixture, or a water-reducing retarding admixture. For night casting, the Contractor may use a water-reducing admixture in lieu of water-reducing retarding admixture, provided that the concrete can be placed and finished prior to initial set.
e. The mix design basis for bulk volume (dry, loose) of coarse aggregate per unit volume of concrete is 68% for Grade S1, and 70% for Grade D, Grade S2, Grade T, and Grade S3.
f. The Contractor may use flexural strength to determine form removal. Use compressive strength for acceptance in other situations.
g. MR = Mid-range.
h. The Engineer will allow the use of an optimized aggregate gradation as specified in section 604.
i. Section Number Reference:

401	Culverts	711	Bridge Railings	803	Concrete Sidewalk, Sidewalk Ramps, and Steps
402	Storm Sewers	712	Bridge Rehabilitation-Concrete	804	Concrete Barriers and Glare Screens
403	Drainage Structures	713	Bridge Rehabilitation-Steel	806	Bicycle Paths
705	Foundation Piling	801	Concrete Driveways	810	Permanent Traffic Signs and Supports
706	Structural Concrete Construction	802	Concrete Curb, Gutter and Dividers		

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Table 902-6
Superpave Final Aggregate Blend Physical Requirements

Est. Traffic (million ESAL)	Mix Type	Percent Crushed Minimum Criteria		Fine Aggregate Angularity Minimum Criteria		% Sand Equivalent Minimum Criteria		Los Angeles Abrasion % Loss Maximum Criteria		% Soft Particles Maximum Criteria (b)		% Flat and Elongated Particles Maximum Criteria (c)	
		Top & Leveling Courses	Base Course	Top & Leveling Courses	Base Course	Top & Leveling Courses	Base Course	Top & Leveling Courses	Base Course	Top & Leveling Courses	Base Course	Top & Leveling Courses	Base Course
< 0.3	LVSP	55/—	—	—	—	40	40	45	45	10	10	—	—
< 0.3	E03	55/—	—	—	—	40	40	45	45	10	10	—	—
≥0.3 -<1.0	E1	65/—	—	40	—	40	40	40	45	10	10	—	—
≥1.0 - < 3	E3	75/—	50/—	40(a)	40(a)	40	40	35	40	5	5	10	10
≥3 - <10	E10	85/80	60/—	45	40	45	45	35	40	5	5	10	10
≥10 - <30	E30	95/90	80/75	45	40	45	45	35	35	3	4.5	10	10
≥30 - <100	E50	100/100	95/90	45	45	50	50	35	35	3	4.5	10	10

(a) For an E3 mixture type that enters the restricted zone as defined in Table 902-5, the minimum is 43. If these criteria are satisfied, acceptance criteria and associated incentive/disincentive or pay adjustment tied to this gradation restricted zone requirement included in contract, do not apply. Otherwise, final gradation blend must be outside of the restricted zone.

(b) Soft particles maximum is the sum of the shale, siltstone, ochre, coal, clay-ironstone and particles that are structurally weak or are non-durable in service.

(c) Maximum by weight with a 1 to 5 aspect ratio.

Note: “85/80” denotes that 85 percent of the coarse aggregate has one fractured face and 80 percent has at least two fractured faces.

Table 912-10 Minimum Retention Requirements				
Preservative	**Minimum Retention, (pcf)**			**AWPA Standard**
	Guardrail Posts	**Sign Posts**	**Blocks**	
Pentachlorophenol	0.60	0.50	0.40	A6
CCA, ACZA	0.60	0.50	0.40	A11
ACQ (a)	0.60	Not Allowed	0.40	A11
CA-B (a)	0.31	Not Allowed	0.21	A11
CA-A (a)	0.31	Not Allowed	0.15	A11
Other Waterborne preservatives	AWPA Commodity Specification A, Table 3.0, Use Category 4B	Not Allowed	AWPA Commodity Specification A, Table 3.0, Use Category 4A	A11
a. Non-Metallic washers or spacers are required for timber and lumber treated with ACQ or CA placed in direct contact with aluminum. Do not use with sign posts.				

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

MSU Soil Testing Lab Recommendationsfor Phosphorus Applications to Turfgrass
3/8/2012

		Sand based rootzone establishment	Golf greens and tees est. or mature; Kentucky bluegrass or perennial ryegrass athletic fields est. or mature; sand based rootzone mature	Lawns, golf course fairways; establishment or mature	Establishment without soil test
Bray P1, Mehlich 3 Soil Test Value (ppm): pH<7.4	Olsen Soil Test Value (ppm) pH>7.4	Recommendation (lbs. P_2O_5/1000 ft.2)	Recommendation (lbs. P_2O_5/1000 ft.2)	Recommendation (lbs. P_2O_5/1000 ft.2)	Recommendation (lbs. P_2O_5/1000 ft.2)
					2.5 lbs. year (Maximum single application of 1.5 lbs.) 109 lbs/acre year (maximum single application of 65 lbs/acre)
0	0	4.4	3.4	2.5	
2	1.3	4.1	3.1	2.2	
4	2.7	3.9	2.7	1.9	
6	4	3.6	2.4	1.6	
8	5.3	3.4	2.0	1.3	
10	6.7	3.1	1.7	1.0	
12	8	2.8	1.4	0.7	
14	9.3	2.6	1.0	0.4	
16	10.7	2.3	0.7	0.1	
18	12	2.1	0.3	0.0	
20	13.3	1.8	0.0		
22	14.7	1.5			
24	16	1.3			
26	17.3	1.0			
28	18.7	0.8			
30	20	0.5			
32	21.3	0.2			
34	22.7	0.0			

Web resources: www.turf.msu.edu or www.bephosphorussmart.msu.edu

An asterisk (*) indicates an entry which has been revised from an earlier version of this Supplemental Specification.

Memo

To: Ms. Anne Warrow – City of Ann Arbor
From: Katherine C. Hennicken, P.E. – TTL Associates, Inc.
Date: February 5, 2018
Re: Geotechnical Bundle #1

TTL has completed the soil borings and pavement cores associated with Geotechnical Bundle #1 in Ann Arbor, Michigan. This memo provides a brief description the encountered pavement, as well as crushed stone thicknesses.

Sixty soil borings, some of which contained associated pavement cores, were performed by TTL during the period from October 4, 2017 through January 26, 2018. Seven soil borings and associated pavement cores were cancelled via email on December 1, 2017. The soil borings are designated SB and the pavement cores are designated PC. The soil borings and pavement core locations were located in the field by the City of Ann Arbor.

The encountered pavement thicknesses are summarized in the tables below.

Location	Limits		Soil Boring Number	Pavement Thickness		Subgrade AASHTO Lab Class	Recommended Resilient Modulus (psi)
				Asphalt (inches)	Crushed Stone (inches)		
Riverview Dr Dover Place	Geddes	Huntington	SB-1	4	9		8,050
			SB-2	4	9		
			SB-3	-	7	A-4 (5)	
			SB-4	2½	12½		
			SB-5	5½	8½		
			SB-6	3	7		
			SB-7	3	9		
S. Seventh Street	Stadium	Scio Church	PC-8	6½	-		8,050
			PC-9	6	-		
			PC-10	5½	-		
			PC-11	5½	-		
			PC-12	5	-		
			PC-13	5¼	-		
			PC-14	6¼	-		
			PC-15	5	-		
			PC-16	7	-		
			PC-17	6½	-		
			PC-18	6	-		
			PC-19	6¼	-		
			PC-20	6	-		
			PC-21	6	6	A-4 (5)	

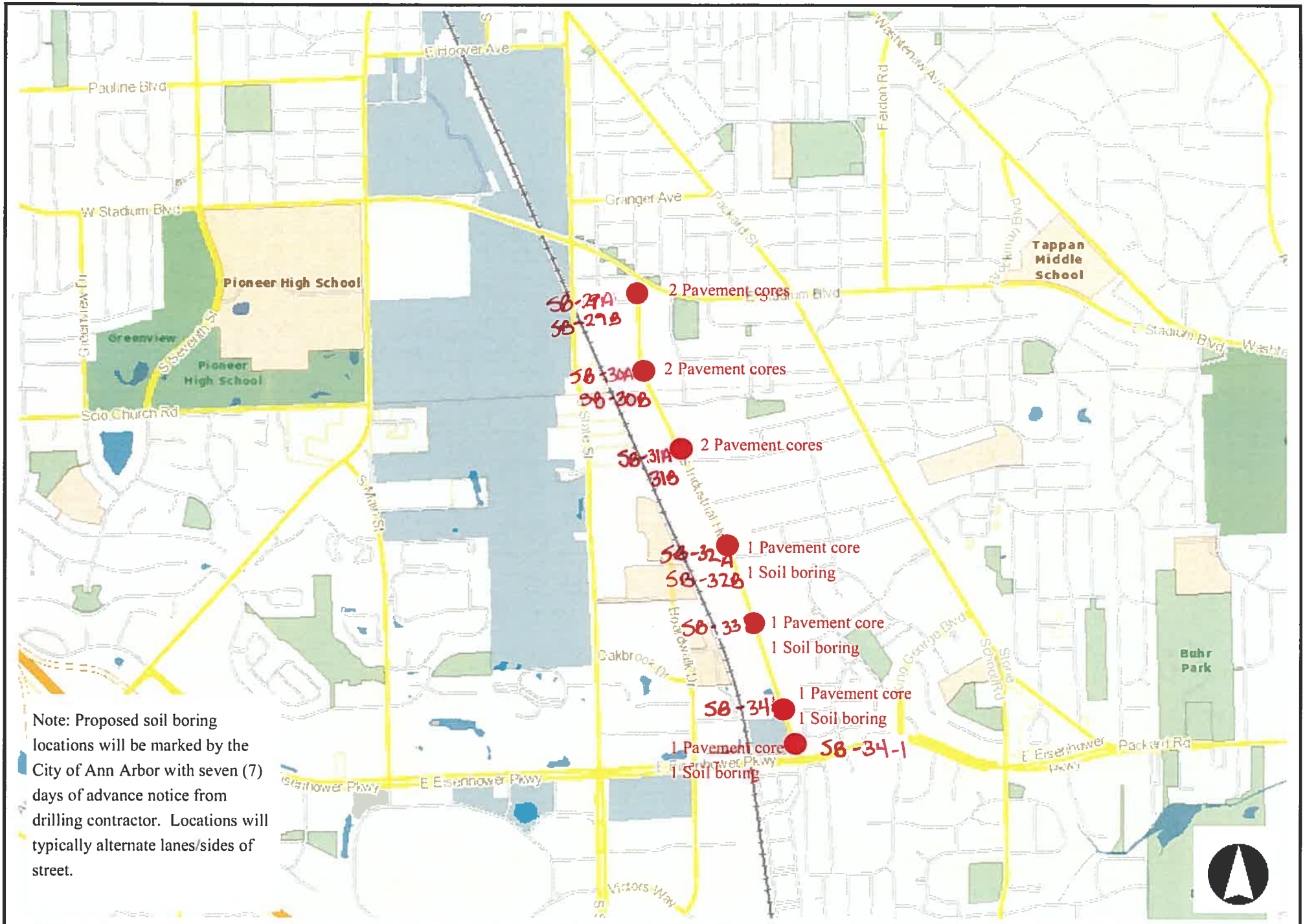
Location	Limits		Soil Boring Number	Pavement Thickness		Subgrade AASHTO Lab Class	Recommended Resilient Modulus (psi)
				Asphalt (inches)	Crushed Stone (inches)		
South State Street	Packard St	E Hoover Ave	SB-22 through SB-28	**Cancelled by City of Ann Arbor**			
South State Street	Stimson	W. Oakbrook					
South Industrial Highway	Stimson	E. Eisenhower Parkway	SB-29A	2½	9½		8,050
			SB-29B	2½	11½		
			SB-30A	8½	6		
			SB-30B	9	11		
			SB-31A	8	18		
			SB-31B	8¼	11¾	A-4 (2)	
			SB-32	9	12		
			SB-33	8	13		
			SB-34	9	15		
			SB-34-1	8½	11½		
Sheridan Drive	Washtenaw	Londonderry	SB-35	3	12		8,050
			SB-36	2	8		
			SB-37	2	12	A-6 (10)	
			SB-38	3	-		
			SB-39	4	-		

Location	Limits		Soil Boring Number	Pavement Thickness		Subgrade AASHTO Lab Class	Recommended Resilient Modulus (psi)
				Asphalt (inches)	Concrete (inches)		
Jackson Ave	Wagner Rd	City or MDOT Jurisdiction	SB-40	-	10		8,050
			SB-41	6	7		
			SB-42	5½	13½		
			SB-43	3	9		
			SB-44	3	10		
			SB-45	-	9		
			SB-46	3	8		
			SB-47	-	8		
			SB-48	4	2		
			SB-49	12	-		
			SB-50	4	13	A-4 (7)	
			SB-51	11	-		

Location	Limits		Soil Boring Number	Pavement Thickness		Subgrade AASHTO Lab Class	Recommended Resilient Modulus (psi)
				Asphalt (inches)	Crushed Stone (inches)		
Horman Ct	Olivia Ave	S Forest Ave	SB-52	5 ½	-	A-1 (0)	12,550
S Forest Ave	Minerva Rd	Roosevelt Ave	SB-53	13	-	A-3 (0)	12,550
Brookwood	White St	Packard St	SB-54	4	4	A-3 (0)	12,550
Sycamore	White St	Pack Place	SB-55	6	-	A-4 (0)	8,050
Rock Creek	Huntington	Dead End	SB-56	3	11	A-4 (4)	8,050
			SB-56-1	2	11		
Lafayette Rd	Highland Rd	Awixa / Highland	SB-57	6	-	A-4 (7)	8,050
			SB-58	3	-		

Photographs of three representative pavement cores from each of South Seventh Street and South Industrial Highway are attached to this report.

Please let us know if you have any questions or comments at this time.



Note: Proposed soil boring locations will be marked by the City of Ann Arbor with seven (7) days of advance notice from drilling contractor. Locations will typically alternate lanes/sides of street.

SOIL BORING LOCATION MAP

South Indutrial Highway- Start Stimson- End Eisenhover

Scale is 1:9,200

6/13/2017

Addendum-1-81

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-29A

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL 20 40 60 80 ▲ SPT N VALUE ▲ 20 40 60 80
	0		ASPHALT - 2.5 Inches 0.2'						
			CRUSHED STONE - 9.5 Inches @0.5': w/Clay 1.0'	SS 1	83	16-16-10-11 (26)	NP		6 ● ▲
			Moist Medium Dense Brown CLAYEY SAND w/Gravel (SC) 2.2'						
			Bottom of hole at 2.2 feet.						

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-29B

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		ASPHALT - 2.5 Inches 0.2'						
			CRUSHED STONE - 11.5 Inches @0.5': w/Clay 1.2'	SS 1	100	12-10-11 (21)	NP		11
			Moist Medium Dense Brown CLAYEY SAND w/Gravel (SC)						
			4.2'	SS 2a	100	13-9	NP		9
	5		Moist Very Stiff Brown LEAN CLAY w/Sand and Trace Gravel (CL) 5.0'	SS 2b	100	9	3.75		15
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-30A

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 8.5 Inches						
			0.7'						
			CRUSHED STONE - 6 Inches						
			@1.2': w/Clay	SS 1	75	12-21-12-12 (33)	NP		7
			2.0'						
			Moist Dense Brown POORLY GRADED SAND w/Clay and Gravel (SP/SC)						
			2.7'						
			Bottom of hole at 2.7 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-30B

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 9 Inches 0.8'						
			CRUSHED STONE - 11 Inches @1.2': w/Clay 1.7'	SS 1	100	16-16-13 (29)	NP		7
			Moist Medium Dense Brown POORLY GRADED SAND w/Clay and Gravel (SP/SC) 3.5'						
	5		Moist Medium Dense Brown SILTY SAND w/Gravel (SM) 5.0'	SS 2	78	12-15-15 (30)	NP		8
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-31A

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 8 Inches 0.7'						
			CRUSHED STONE - 18 Inches @1.2': w/Clay 2.2'	SS 1	71	9-10-8-7 (18)	NI		9
			Moist Stiff Dark Gray LEAN CLAY w/Sand and Gravel (CL) 2.7'						
			Bottom of hole at 2.7 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-31B

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 8.25 Inches						
			0.7'						
			CRUSHED STONE - 11.75 Inches						
			1.7'						
			@1.3': w/Clay	SS 1	89	9-11-7 (18)	NI		11
			Moist Very Stiff Gray/Brown LEAN CLAY w/Sand and Gravel (CL)						
			3.5'						
	5		Moist Loose Gray/Brown SILTY, CLAYEY SAND w/Trace Gravel (SC-SM)	SS 2	100	5-5-4 (9)	NP		16
			5.0'						
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-32

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 9 Inches 0.8'						
			CRUSHED STONE - 12 Inches @1.3': w/Clay 1.8'	SS 1	100	16-13-10 (23)	3.00		10
			Moist Very Stiff Brown LEAN CLAY w/Sand and Gravel (CL) 3.5'						
	5		Moist Medium Stiff Brown LEAN CLAY w/Sand and Gravel (CL) 5.0'	SS 2	67	5-3-3 (6)	NI		12
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-33

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 8 Inches 0.7'						
			CRUSHED STONE - 13 Inches @1.3': w/Clay 1.8'	SS 1	67	14-18-16 (34)	NP		8
			Moist Dense Brown POORLY GRADED SAND w/Clay and Gravel (SP/SC) 3.5'						
	5		Moist Medium Dense Brown CLAYEY SAND w/Gravel (SC) 5.0'	SS 2	83	9-14-22 (36)	NP		9
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-34

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 9 Inches 0.8'						
			CRUSHED STONE - 15 Inches @1.3': w/Clay 2.0'	SS 1	100	9-8-6 (14)	NP		7
			Moist Medium Dense Brown POORLY GRADED SAND w/Clay and Gravel (SP/SC) 3.5'						
	5		Wet Very Loose Brown POORLY GRADED SAND w/Gravel and Trace Silt (SP) (Free Water Noted in Jar) 5.0'	SS 2	44	3-2-1 (3)	NP		12
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

TTL Associates, Inc.
1915 N 12th Street
Toledo, Ohio 43624
Telephone: 419-324-2222
Fax: 419-241-1808

BORING NUMBER SB-34-1

CLIENT City of Ann Arbor
PROJECT NAME Geotechnical Bundle #1
PROJECT NUMBER 15047.02
PROJECT LOCATION Ann Arbor, MI
DRILLING CONTRACTOR TTL Associates CW AO
RIG NO. 844
GROUND ELEVATION
DRILLING METHOD 2-1/4 in. HSA
GROUND WATER LEVELS:
DATE STARTED 12/21/17 **COMPLETED** 12/21/17
AT TIME OF DRILLING None
LOGGED BY KKC **CHECKED BY** KCH
AT END OF DRILLING None
NOTES South Industrial Highway
0hrs AFTER DRILLING Backfilled w/Cuttings, Chips, and Patch

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL / SPT N VALUE
	0		CONCRETE - 8.5 Inches						
			0.7'						
			CRUSHED STONE - 11.5 Inches @1.2': w/Clay						
			1.7'	SS 1	100	12-13-15 (28)	NP		5
			Moist Medium Dense Brown POORLY GRADED SAND w/Gravel and Trace Clay (SP)						
				SS 2	100	7-6-5 (11)	NP		11
	5		5.0'						
			Bottom of hole at 5.0 feet.						

PL MC LL
20 40 60 80
▲ SPT N VALUE ▲
20 40 60 80

TTL_GEOTECH_STANDARD 15047.02.GPJ GINT US LAB.GDT 2/5/18

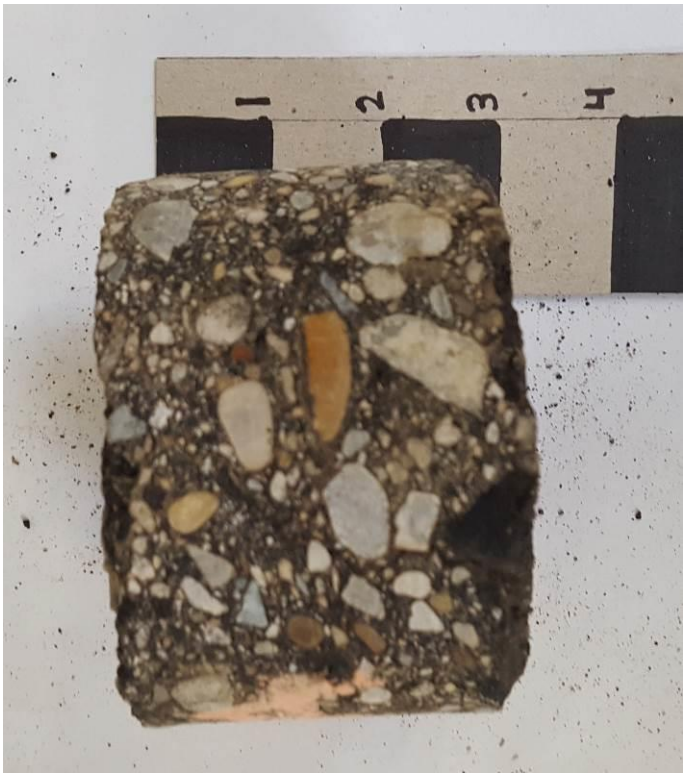
CORE LOG for SB-29A

Project: Geotechnical Bundle #1

Project Location: South Industrial Highway, Ann Arbor, Michigan

TTL Project No. 1504702

Core Date: December 21, 2017



ASPHALT THICKNESS (in)	=	2.5
CORE BARREL DIAMETER (in)	=	4.0

VISUAL DESCRIPTION:

CORE LOG for SB-31A

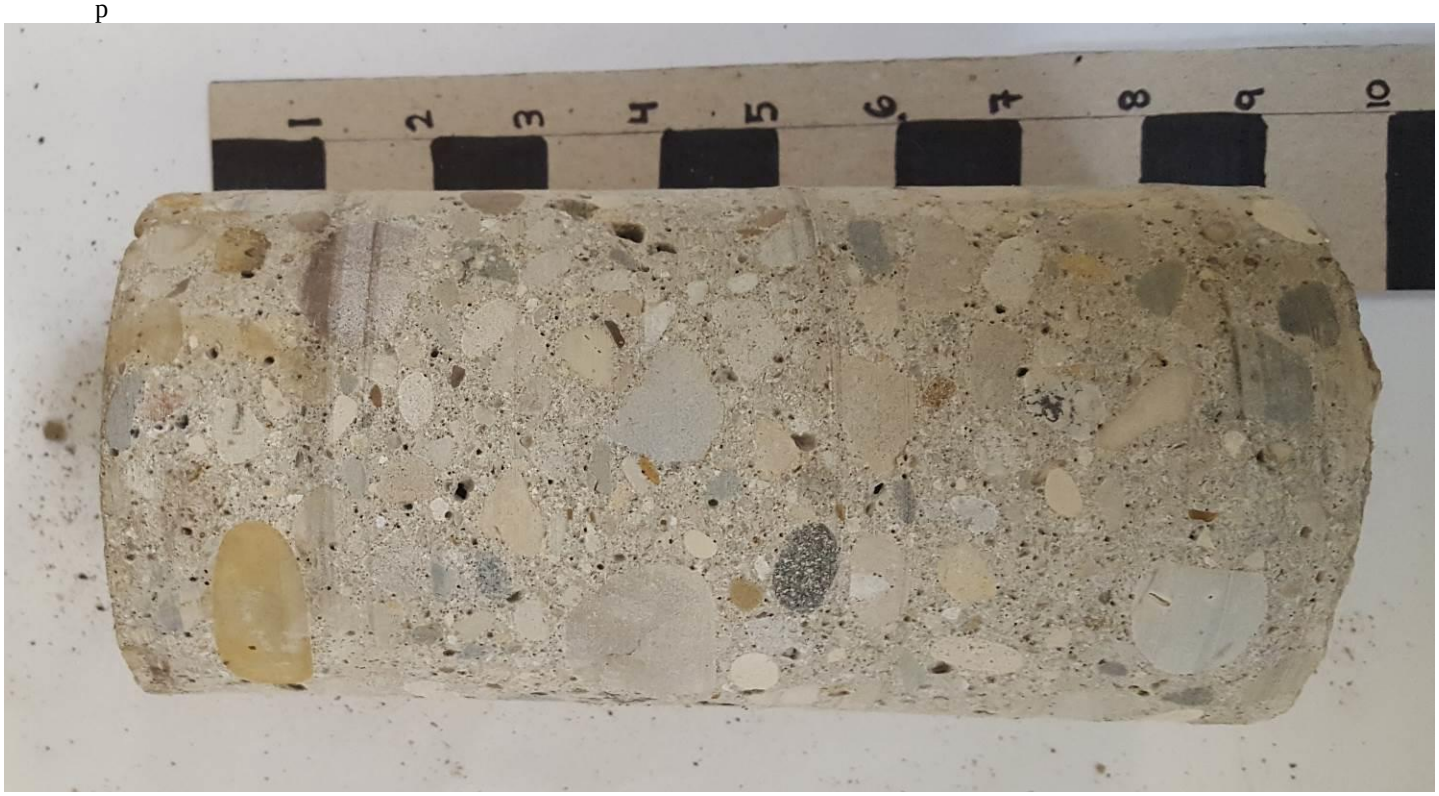
Project: Geotechnical Bundle #1

Project Location: South Industrial Highway, Ann Arbor, Michigan

TTL Project No. 1504702

Core Date: December 21, 2017

p



CONCRETE THICKNESS (in)	=	8.0
CORE BARREL DIAMETER (in)	=	4.0

VISUAL DESCRIPTION:

CORE LOG for SB-34-1

Project: Geotechnical Bundle #1

Project Location: South Industrial Highway, Ann Arbor, Michigan

TTL Project No. 1504702

Core Date: December 21, 2017

CONCRETE THICKNESS (in)	=	8.5
CORE BARREL DIAMETER (in)	=	4.0

VISUAL DESCRIPTION:

"General Decision Number: MI20210001 01/01/2021

Superseded General Decision Number: MI20200001

State: Michigan

Construction Types: Highway (Highway, Airport & Bridge xxxxx
and Sewer/Incid. to Hwy.)

Counties: Michigan Statewide.

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

Modification Number	Publication Date
0	01/01/2021

CARP0004-004 06/01/2019

REMAINDER OF STATE

	Rates	Fringes
CARPENTER (Piledriver).....	$ 27.62	20.59

CARP0004-005 06/01/2018

LIVINGSTON (Townships of Brighton, Deerfield, Genoa, Hartland, Oceola & Tyrone), MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES

	Rates	Fringes
CARPENTER (Piledriver).....	$ 30.50	27.28

ELEC0017-005 06/01/2020

STATEWIDE

	Rates	Fringes
Line Construction		
Groundman/Driver.....	$ 28.84	16.03
Journeyman Signal Tech, Communications Tech, Tower Tech & Fiber Optic Splicers.	$ 41.44	20.00
Journeyman Specialist.....	$ 47.66	21.96
Operator A.....	$ 35.02	17.99
Operator B.....	$ 32.69	17.25

Classifications

Journeyman Specialist: Refers to a crew of only one person working alone.
Operator A: Shall be proficient in operating all power equipment including: Backhoe, Excavator, Directional Bore and Boom/Digger truck.
Operator B: Shall be proficient in operating any 2 of the above mentioned pieces of equipment listed under Operator A.

ENGI0324-003 06/01/2020

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes

OPERATOR: Power Equipment
(Steel Erection)

GROUP 1	$ 47.02	24.85
GROUP 2	$ 48.02	24.85
GROUP 3	$ 45.52	24.85
GROUP 4	$ 46.52	24.85
GROUP 5	$ 44.02	24.85
GROUP 6	$ 45.02	24.85
GROUP 7	$ 43.75	24.85
GROUP 8	$ 44.75	24.85
GROUP 9	$ 43.30	24.85
GROUP 10	$ 44.30	24.85
GROUP 11	$ 42.57	24.85
GROUP 12	$ 43.57	24.85
GROUP 13	$ 42.21	24.85
GROUP 14	$ 43.21	24.85
GROUP 15	$ 41.57	24.85
GROUP 16	$ 38.62	24.85
GROUP 17	$ 24.14	12.00
GROUP 18	$ 27.63	12.00

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib 400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Engineer when operating combination of boom and jib 120' or longer

GROUP 12: Engineer when operating combination of boom and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator; job mechanic and 3 drum hoist and excavator

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator; 2 drum hoist and rubber tired backhoe

GROUP 16: Forklift and 1 drum hoist

GROUP 17: Compressor or welder operator

GROUP 18: Oiler

ENGI0324-004 06/01/2020

AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN

AREA 2: ANTRIM, BENZIE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE AND WEXFORD COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
AREA 1		
GROUP 1	$ 47.02	24.85
GROUP 2	$ 43.75	24.85
GROUP 3	$ 42.21	24.85

GROUP 4	$ 38.62	24.85
GROUP 5	$ 24.14	12.00
GROUP 6	$ 27.63	12.00
AREA 2		
GROUP 1	$ 47.02	24.85
GROUP 2	$ 43.75	24.85
GROUP 3	$ 42.21	24.85
GROUP 4	$ 38.62	24.85
GROUP 5	$ 24.14	12.00
GROUP 6	$ 27.63	12.00

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: $1.50 additional to the group 1 rate. Crane operator with main boom and jib 400' or longer: $3.00 additional to the group 1 rate.
PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Crane Operator with main boom & jib 400', 300', or 220' or longer.

GROUP 2: Crane Operator with main boom & jib 140' or longer, Tower Crane; Gantry Crane; Whirley Derrick.

GROUP 3: Regular Equipment Operator, Crane, Dozer, Loader, Hoist, Straddle Wagon, Mechanic, Grader and Hydro Excavator.

GROUP 4: Air Tugger (single drum), Material Hoist Pump 6"" or over, Elevators, Brokk Concrete Breaker.

GROUP 5: Air Compressor, Welder, Generators, Conveyors

GROUP 6: Oiler and fire tender

ENGI0324-005 09/01/2020

AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,

KWEENAW, LAKE, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
OPERATOR: Power Equipment (Underground construction (including sewer))		
AREA 1:		
GROUP 1	$ 35.88	24.85
GROUP 2	$ 31.15	24.85
GROUP 3	$ 30.42	24.85
GROUP 4	$ 29.85	24.85
GROUP 5	$ 21.40	12.05
AREA 2:		
GROUP 1	$ 34.17	24.85
GROUP 2	$ 29.28	24.85
GROUP 3	$ 28.78	24.85
GROUP 4	$ 28.50	24.85
GROUP 5	$ 21.40	12.05

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator; Hydro Excavator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more - 6-in. discharge or larger - gas or diesel- powered or powered by generator of 300 amperes or more - inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller);Vac Truck and End dump operator;

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging,

non- powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered - excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger - gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Hydraulic pipe pushing machine; Mulching equipment; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); Sweeper (Wayne type); Water wagon and Extend-a boom forklift

Group 5: Fire Person, Oiler

---

* ENGI0324-006 06/01/2020

GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW, WAYNE, ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
Power equipment operators: (AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION)		
GROUP 1	$ 34.91	24.85
GROUP 2	$ 28.18	24.85
GROUP 3	$ 27.62	24.85
GROUP 4	$ 27.45	24.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plant operator; Crane operator (does not include work on bridge construction projects when the crane operator is erecting structural components); Dragline operator; Shovel operator; Locomotive operator; Paver operator (5 bags or more); Elevating grader operator; Pile driving operator; Roller operator (asphalt); Blade grader operator; Trenching machine operator (ladder or wheel type); Auto-grader; Slip form paver; Self-propelled or tractor-drawn scraper; Conveyor loader operator (Euclid type); Endloader operator (1 yd. capacity and over); Bulldozer; Hoisting engineer; Tractor operator; Finishing machine operator (asphalt); Mechanic; Pump operator (6-in. discharge or over, gas, diesel powered or generator of 300 amp. or larger); Shouldering or gravel distributing machine operator (self- propelled); Backhoe (with over 3/8 yd. bucket); Side boom tractor (type D-4 or equivalent or larger); Tube finisher (slip form paving); Gradall (and similar type machine); Asphalt paver (self- propelled); Asphalt planer (self-propelled); Batch plant (concrete-central mix); Slurry machine (asphalt); Concrete pump (3 in. and over); Roto-mill; Swinging boom truck (over 12 ton capacity); Hydro demolisher (water blaster); Farm-type tractor with attached pan; Vacuum truck operator; Batch Plant (concrete dry batch); Concrete Saw Operator (40h.p. or over; Tractor Operator (farm type); Finishing Machine Operator (concrete); Grader Operator (self-propelled fine grade or form (concrete)).

GROUP 2: Screening plant operator; Washing plant operator; Crusher operator; Backhoe (with 3/8 yd. bucket or less); Side boom tractor (smaller than D-4 type or equivalent); Sweeper (Wayne type and similar equipment); Greese Truck; Air Compressor Operator (600 cu.ft. per min or more); Air Compressor Operator (two or more, less than 600 cfm);

GROUP 3: Boiler fire tender; Tractor operator (farm type with attachment); Concrete Breaker; Wagon Drill Operator;

GROUP 4: Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Boom or winch hoist truck operator; Endloader operator *under 1 yd. capacity); Roller Operator (other than asphalt); Curing equipment operator (self-propelled); Power bin operator; Plant drier (6 ft. wide or over); Guard post driver operator (power driven); All mulching equipment; Stump remover; Concrete pump (under 3-in.); Mesh installer (self-propelled); End dump; Skid Steer.

ENGI0324-007 05/01/2020

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
Compressor, welder and forklift	$ 33.90	24.60
Crane operator, main boom & jib 120' or longer	$ 40.37	24.60
Crane operator, main boom & jib 140' or longer	$ 40.67	24.60
Crane operator, main boom & jib 220' or longer	$ 41.26	24.60
Mechanic with truck and tools	$ 39.50	24.60
Oiler and fireman	$ 32.36	24.60
Regular operator	$ 37.72	24.60

ENGI0324-008 10/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
OPERATOR: Power Equipment (Sewer Relining)		
GROUP 1	$ 30.70	12.93
GROUP 2	$ 29.17	12.93

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system, including remote in-ground cutter and other equipment used in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation systems, water jetters and vacuum and mechanical debris removal systems

---

ENGI0325-012 05/01/2020

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
GROUP 1	$ 32.18	24.85
GROUP 2	$ 32.06	24.85
GROUP 3	$ 30.35	24.85

SCOPE OF WORK: The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as ""distribution work,"" starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

Group 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader). Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service).

GROUP 3: Oiler, hydraulic pipe pushing machine, grease person and hydrostatic testing operator.

IRON0008-007 06/01/2020

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector	$ 23.70	6.95
IRONWORKER		
General contracts $10,000,000 or greater	$ 34.99	27.12
General contracts less than $10,000,000	$ 34.99	27.12

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

IRON0025-002 06/01/2019

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
Alcona, Alpena, Arenac, Cheboygan, Clare, Clinton, Crawford, Gladwin, Gratiot, Huron, Ingham, Iosco, Isabella, Jackson, Lapeer, Livingston (west of Burkhardt Road), Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, Roscommon, Sanilac, Shiawassee, Tuscola & Washtenaw (west of U.S. 23)	$ 24.26	22.11
Bay, Genesee, Lapeer, Livingston (east of Burkhardt Road), Macomb, Midland, Oakland, Saginaw,		

St. Clair, The University of Michigan, Washtenaw (east of U.S. 23) & Wayne	$ 25.48	23.11
IRONWORKER		
Ornamental and Structural	$ 36.77	29.03
Reinforcing	$ 30.98	27.99

IRON0055-005 07/01/2020

LENAWEE AND MONROE COUNTIES:

	Rates	Fringes
IRONWORKER		
Pre-engineered metal buildings	$ 23.59	19.35
All other work	$ 31.00	25.60

IRON0292-003 06/01/2020

BERRIEN AND CASS COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector)	$ 31.75	22.84

IRON0340-001 06/19/2017

ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX, EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector)	$ 24.43	24.67

LABO0005-006 10/01/2020

	Rates	Fringes
Laborers - hazardous waste abatement: (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX,		

CHEBOYGAN, CRAWFORD, EMMET,
GRAND TRAVERSE, IOSCO,
KALKASKA, LEELANAU,
MISSAUKEE, MONTMORENCY,
OSCODA, OTSEGO, PRESQUE ISLE
AND WEXFORD COUNTIES - Zone
10)

Levels A, B or C	$ 17.45	12.75
class b	$ 18.64	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 16.45	12.75
class a	$ 17.64	12.90

Zone 10
Laborers - hazardous waste
abatement: (ALGER, BARAGA,
CHIPPEWA, DELTA, DICKINSON,
GOGEBIC, HOUGHTON, IRON,
KEWEENAW, LUCE, MACKINAC,
MARQUETTE, MENOMINEE,
ONTONAGON AND SCHOOLCRAFT
COUNTIES - Zone 11)

Levels A, B or C	$ 23.58	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 22.58	12.90

Laborers - hazardous waste
abatement: (ALLEGAN, BARRY,
BERRIEN, BRANCH, CALHOUN,
CASS, IONIA COUNTY (except
the city of Portland);
KALAMAZOO, KENT, LAKE,
MANISTEE, MASON, MECOSTA,
MONTCALM, MUSKEGON, NEWAYGO,
OCEANA, OSCEOLA, OTTAWA, ST.
JOSEPH AND VAN BUREN COUNTIES
- Zone 9)

Levels A, B or C	$ 21.80	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 20.80	12.90

Laborers - hazardous waste abatement: (ARENAC, BAY, CLARE, GLADWIN, GRATIOT, HURON, ISABELLA, MIDLAND, OGEMAW, ROSCOMMON, SAGINAW AND TUSCOLA COUNTIES - Zone 8)

Levels A, B or C	$ 21.39	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D	$ 20.80	12.90

Laborers - hazardous waste abatement: (CLINTON, EATON AND INGHAM COUNTIES; IONIA COUNTY (City of Portland); LIVINGSTON COUNTY (west of Oak Grove Rd., including the City of Howell) - Zone 6)

Levels A, B or C	$ 25.64	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D	$ 24.64	12.90

Laborers - hazardous waste abatement: (GENESEE, LAPEER AND SHIAWASSEE COUNTIES - Zone 7)

Levels A, B or C	$ 24.20	13.80
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D	$ 23.20	13.80

Laborers - hazardous waste abatement: (HILLSDALE, JACKSON AND LENAWEE COUNTIES - Zone 4)

Levels A, B or C	$ 25.17	12.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D	$ 24.17	12.90

Laborers - hazardous waste

abatement: (LIVINGSTON COUNTY (east of Oak Grove Rd. and south of M-59, excluding the city of Howell); AND WASHTENAW COUNTY - Zone 3)

Levels A, B or C	$ 29.93	14.20
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 28.93	14.20
Laborers - hazardous waste abatement: (MACOMB AND WAYNE COUNTIES - Zone 1)		
Levels A, B or C	$ 29.93	16.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 28.93	16.90
Laborers - hazardous waste abatement: (MONROE COUNTY - Zone 4)		
Levels A, B or C	$ 31.75	14.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 31.75	14.90
Laborers - hazardous waste abatement: (OAKLAND COUNTY and the Northeast portion of LIVINGSTON COUNTY bordered by Oak Grove Road on the West and M-59 on the South - Zone 2)		
Level A, B, C	$ 29.93	16.90
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 28.93	16.90
Laborers - hazardous waste abatement: (SANILAC AND ST. CLAIR COUNTIES - Zone 5)		
Levels A, B or C	$ 25.75	16.35

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....$ 24.75 16.35

LABO0259-001 09/01/2018

AREA 1: MACOMB, OAKLAND AND WAYNE COUNTIES
AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONROE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW AND WEXFORD COUNTIES

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
AREA 1		
GROUP 1	$ 22.57	16.80
GROUP 2	$ 22.68	16.80
GROUP 3	$ 22.74	16.80
GROUP 4	$ 22.92	16.80
GROUP 5	$ 23.17	16.80
GROUP 6	$ 23.50	16.80
GROUP 7	$ 16.78	16.80
AREA 2		
GROUP 1	$ 24.10	12.85
GROUP 2	$ 24.19	12.85
GROUP 3	$ 24.29	12.85
GROUP 4	$ 24.45	12.85
GROUP 5	$ 24.71	12.85
GROUP 6	$ 25.02	12.85
GROUP 7	$ 17.29	12.85

SCOPE OF WORK: Tunnel, shaft and caisson work of every type and description and all operations incidental thereto, including, but not limited to, shafts and tunnels for sewers, water, subways, transportation, diversion,

sewerage, caverns, shelters, aquafers, reservoirs, missile silos and steel sheeting for underground construction.

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog house tender, testing (on gas) and watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer tender, mortar machine and material mixer

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LABO0334-001 09/01/2018

	Rates	Fringes
Laborers - open cut:		
ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES:		
GROUP 1	$ 22.42	16.80
GROUP 2	$ 22.53	16.80
GROUP 3	$ 22.58	16.80
GROUP 4	$ 22.66	16.80
GROUP 5	$ 22.72	16.80

GROUP 6	$ 20.17	16.80
GROUP 7	$ 16.79	16.80
ZONE 2 - LIVINGSTON COUNTY (east of M-151 (Oak Grove Rd.)); MONROE AND WASHTENAW COUNTIES:		
GROUP 1	$ 23.75	12.85
GROUP 2	$ 23.86	12.85
GROUP 3	$ 23.98	12.85
GROUP 4	$ 24.05	12.85
GROUP 5	$ 24.20	12.85
GROUP 6	$ 21.50	12.85
GROUP 7	$ 18.14	12.85
ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (City of Portland); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (west of M-151 Oak Grove Rd.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES:		
GROUP 1	$ 21.94	12.85
GROUP 2	$ 22.08	12.85
GROUP 3	$ 22.20	12.85
GROUP 4	$ 22.25	12.85
GROUP 5	$ 22.39	12.85
GROUP 6	$ 19.69	12.85
GROUP 7	$ 16.84	12.85
ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO,		

OTTAWA, PRESQUE ISLE,
ROSCOMMON, SAGINAW, ST.
JOSEPH, TUSCOLA, VAN BUREN
AND WEXFORD COUNTIES:

GROUP 1	$ 20.97	12.85
GROUP 2	$ 21.10	12.85
GROUP 3	$ 21.21	12.85
GROUP 4	$ 21.28	12.85
GROUP 5	$ 21.40	12.85
GROUP 6	$ 18.62	12.85
GROUP 7	$ 16.96	12.85

ZONE 5 - ALGER, BARAGA,
CHIPPEWA, DELTA,
DICKINSON, GOGEBIC,
HOUGHTON, IRON,
KEWEENAW, LUCE, MACKINAC,
MARQUETTE, MENOMINEE,
ONTONAGON AND SCHOOLCRAFT
COUNTIES:

GROUP 1	$ 21.19	12.85
GROUP 2	$ 21.33	12.85
GROUP 3	$ 21.46	12.85
GROUP 4	$ 21.51	12.85
GROUP 5	$ 21.56	12.85
GROUP 6	$ 18.94	12.85
GROUP 7	$ 17.05	12.85

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation. For all areas except the Upper Peninsula, open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under

Tunnel, Shaft and Caisson work.

OPEN CUT LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, headwall, seawall, breakwall and dock builder

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting man, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

---

* LABO0465-001 06/01/2020

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX,

CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE,
IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU,
MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY,
NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA,
PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC,
HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE,
ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90
LABORER (AREA 2)		
GROUP 1	$ 26.92	12.90
GROUP 2	$ 27.12	12.90
GROUP 3	$ 27.36	12.90
GROUP 4	$ 27.71	12.90
GROUP 5	$ 27.58	12.90
GROUP 6	$ 27.92	12.90
LABORER (AREA 3)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90
LABORER (AREA 4)		
GROUP 1	$ 26.22	12.90
GROUP 2	$ 26.43	12.90
GROUP 3	$ 26.72	12.90
GROUP 4	$ 27.16	12.90
GROUP 5	$ 26.78	12.90
GROUP 6	$ 27.21	12.90

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or

bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing,(other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender(including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

LABO1076-005 04/01/2019

MICHIGAN STATEWIDE

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1	$ 21.47	12.90
Zone 2	$ 19.77	12.90
Zone 3	$ 17.95	12.90
Zone 4	$ 17.32	12.90
Zone 5	$ 17.30	12.90

DISTRIBUTION WORK - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil, gas or other similar materials, vapors or liquids, including pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: $.40 per hour above the base pay rate.

Zone 1 - Macomb, Oakland and Wayne
Zone 2 - Monroe and Washtenaw
Zone 3 - Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair
Zone 4 - Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft
Zone 5 - Remaining Counties in Michigan

PAIN0022-002 07/01/2008

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (east of the eastern city limits of Howell, not including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
PAINTER	$ 25.06	14.75

FOOTNOTES: For all spray work and journeyman rigging for spray work, also blowing off, $0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment. For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, $0.80 per hour additional. For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, $0.50 per hour additional. For all preparatorial work and painting

performed on open steel under forty (40) feet when no scaffolding is involved, $0.50 per hour additional. For all swing stage work-window jacks and window belts-exterior and interior, $0.50 per hour additional. For all spray work and sandblaster work to a scaffold height of forty (40) feet above the floor level, $0.80 per hour additional. For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, $0.50 per hour additional. For all steeplejack work performed where the elevation is forty (40) feet or more, $1.25 per hour additional.

PAIN0312-001 06/01/2018

EXCLUDES: ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); INCLUDES: Barry, Berrien, Branch, Calhoun, Cass, Hillsdale, Kalamazoo, St. Joseph, Van Buren

	Rates	Fringes
PAINTER		
Brush and roller	$ 23.74	13.35
Spray, Sandblast, Sign Painting	$ 24.94	13.35

PAIN0845-003 05/10/2018

CLINTON COUNTY; EATON COUNTY (does not include the townships of Bellevue and Olivet); INGHAM COUNTY; IONIA COUNTY (east of Hwy. M 66); LIVINGSTON COUNTY (west of the eastern city limits of Howell, including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); AND SHIAWASSEE COUNTY (Townships of Bennington, Laingsbury and Perry):

	Rates	Fringes
PAINTER	$ 25.49	13.74

PAIN0845-015 05/10/2018

MUSKEGON COUNTY; NEWAYGO COUNTY (except the Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OCEANA COUNTY; OTTAWA COUNTY (except the townships of Allendale, Blendone, Chester,

Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER	$ 25.49	13.74

PAIN0845-018 05/10/2018

ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); IONIA COUNTY (west of Hwy. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OSCEOLA COUNTY (south of Hwy. #10); OTTAWA COUNTY (Townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER	$ 25.49	13.74

FOOTNOTES: Lead abatement work: $1.00 per hour additional.

PAIN1011-003 06/02/2019

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
PAINTER	$ 25.76	13.33

FOOTNOTES: High pay (bridges, overpasses, watertower): 30 to 80 ft.: $.65 per hour additional. 80 ft. and over: $1.30 per hour additional.

PAIN1474-002 06/01/2010

HURON COUNTY; LAPEER COUNTY (east of Hwy. M-53); ST. CLAIR, SANILAC AND TUSCOLA COUNTIES:

	Rates	Fringes

PAINTER.....$ 23.79 12.02

FOOTNOTES: Lead abatement work: $1.00 per hour additional. Work with any hazardous material: $1.00 per hour additional. Sandblasting, steam cleaning and acid cleaning: $1.00 per hour additional. Ladder work at or above 40 ft., scaffold work at or above 40 ft., swing stage, boatswain chair, window jacks and all work performed over a falling height of 40 ft.: $1.00 per hour additional. Spray gun work, pick pullers and those handling needles, blowing off by air pressure, and any person rigging (setting up and moving off the ground): $1.00 per hour additional. Steeplejack, tanks, gas holders, stacks, flag poles, radio towers and beacons, power line towers, bridges, etc.: $1.00 per hour additional, paid from the ground up.

PAIN1803-003 06/01/2019

ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (north of Hwy. #10); OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES:

	Rates	Fringes
PAINTER		
Work performed on water, bridges over water or moving traffic, radio and powerline towers, elevated tanks, steeples, smoke stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except maintenance of industrial plants	$ 25.39	14.68
All other work, including maintenance of industrial plant	$ 25.39	14.68

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work

involving a swing stage, boatswain chair or spider: $1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: $1.25 per hour additional.

PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1	$ 31.47	13.81
ZONE 2	$ 29.97	13.81

PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
Plumber/Pipefitter - gas distribution pipeline:		
Welding in conjunction with gas distribution pipeline work	$ 33.03	20.19
All other work:	$ 24.19	12.28

TEAM0007-004 06/01/2020

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

	Rates	Fringes
TRUCK DRIVER		
AREA 1		
Euclids, double bottoms and lowboys	$ 28.05	.50 + a+b
Trucks under 8 cu. yds.	$ 27.80	.50 + a+b
Trucks, 8 cu. yds. and over	$ 27.90	.50 + a+b
AREA 2		
Euclids, double bottomms and lowboys	$ 24.895	.50 + a+b
Euclids, double bottoms and lowboys	$ 28.15	.50 + a+b
Trucks under 8 cu. yds.	$ 27.90	.50 + a+b
Trucks, 8 cu. yds. and over	$ 28.00	.50 + a+b

Footnote:
a. $47.70 per week
b. $68.70 daily

TEAM0247-004 04/01/2013

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, SAGINAW, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

	Rates	Fringes
Sign Installer		
AREA 1		
GROUP 1	$ 21.78	11.83
GROUP 2	$ 25.27	11.8375
AREA 2		
GROUP 1	$ 22.03	11.83
GROUP 2	$ 25.02	11.8375

FOOTNOTE:

a. $132.70 per week, plus $17.80 per day.

SIGN INSTALLER CLASSIFICATIONS:

GROUP 1: performs all necessary labor and uses all tools required to construct and set concrete forms required in the installation of highway and street signs

GROUP 2: performs all miscellaneous labor, uses all hand and power tools, and operates all other equipment, mobile or otherwise, required for the installation of highway and street signs

---

TEAM0247-010 04/01/2018

AREA 1: LAPEER AND SHIAWASSEE COUNTIES

AREA 2: GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

	Rates	Fringes
TRUCK DRIVER (Underground construction)		
AREA 1		
GROUP 1	$ 23.82	19.04
GROUP 2	$ 23.91	19.04
GROUP 3	$ 24.12	19.04
AREA 2		
GROUP 1	$ 24.12	19.04
GROUP 2	$ 24.26	19.04
GROUP 3	$ 24.45	19.04

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing, grading, sewers, utilities and improvements; also including but not limited to, tunnels, underground piping, retention, oxidation, flocculation facilities, conduits, general excavation and steel sheeting for underground construction. Underground construction work shall not include any structural modifications, alterations, additions and repairs to buildings or highway work, including roads, streets, bridge construction and parking lots or steel erection.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8 cubic yards capacity or over, pole trailers, semis, low boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

SUMI2002-001 05/01/2002

	Rates	Fringes
Flag Person	$ 10.10	0.00
LINE PROTECTOR (ZONE 1:		

GENESEE, MACOMB, MONROE,
OAKLAND, WASHTENAW AND WAYNE)....$ 20.30 12.90

LINE PROTECTOR (ZONE 2:
STATEWIDE (EXCLUDING GENESEE,
MACOMB, MONROE, OAKLAND,
WASHTENAW AND WAYNE).....$ 18.02 12.90

Pavement Marking Machine
(ZONE 1: GENESEE, MACOMB,
MONROE, OAKLAND, WASHTENAW
AND WAYNE COUNTIES)
Group 1.....$ 27.07 12.90

Pavement Marking Machine
(ZONE 1: GENESEE, MACOMB,
MONROE, OAKLAND, WASHTENAW
AND WAYNE)
Group 2.....$ 24.36 12.90

Pavement Marking Machine
(ZONE 2: STATEWIDE (EXCLUDING
GENESEE, MACOMB, MONROE,
OAKLAND, WASHTENAW AND WAYNE
COUNTIES)
Group 1.....$ 24.02 12.90

Pavement Marking Machine
(ZONE 2: STATEWIDE (EXCLUDING
GENESEE, MACOMB, MONROE,
OAKLAND, WASHTENAW AND WAYNE)
Group 2.....$ 21.62 12.90

WORK CLASSIFICATIONS:

PAVEMENT MARKER GROUP 1: Drives or operates a truck mounted striper, grinder, blaster, groover, or thermoplastic melter for the placement or removal of temporary or permanent pavement markings or markers.

PAVEMENT MARKER GROUP 2: Performs all functions involved for the placement or removal of temporary or permanent pavement markings or markers not covered by the classification of Pavement Marker Group 1 or Line Protector.

LINE PROTECTOR: Performs all operations for the protection or removal of temporary or permanent pavement markings or markers in a moving convoy operation not performed by the classification of Pavement Marker Group 1. A moving convoy operation is comprised of only Pavement Markers Group 1 and

Line Protectors.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

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

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were

prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

based.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

==========

END OF GENERAL DECISION
"