

INVITATION TO BID

ITB # 4288

West Madison Street Improvements Project



Wednesday, May 8, 2013 by 11:00 AM

Issued By:

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

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ADVERTISEMENT FOR THE SOUTH FOURTH AVENUE
IMPROVEMENTS PROJECT
CITY OF ANN ARBOR

ITB # 4288

Sealed Bids will be received by the City of Ann Arbor Procurement Unit, Fifth (5th) Floor, Guy Larcom City Hall, on or before Wednesday, May 8, 2013 by 11:00 AM for construction of West Madison Street Improvements Project. Bids will be publicly opened and read aloud at this time.

Work to be done includes the reconstruction of West Madison Street between Main Street and Seventh Street including replacement of HMA pavement, sand subbase, aggregate base, curb, and storm sewer, installation of the storm water management system, water main replacement, and permanent pavement markings and all related work.

A pre-bid conference will be held Thursday, April 25, 2013 at 2:00 p.m. in the 4th floor Conference Room, City Hall located at 301 E. Huron St., Ann Arbor, Michigan 48104. Attendance is highly recommended.

Bid documents, specifications, plans and addendum shall be downloaded by vendors at either of the following web sites, Michigan Inter-governmental Trade Network (MITN) www.mitn.info or City of Ann Arbor web site www.A2gov.org. It is the bidder's responsibility to verify they have obtained all information before submitting a bid.

Each Bid shall be accompanied by a certified check, or Bid Bond by a recognized surety, in the amount of 5% of the total of the bid price. A Bid, once submitted, becomes the property of the City. In the sole discretion of the City, the City reserves the right to allow a bidder to reclaim submitted documents provided the documents are requested and retrieved no later than 48 hours prior to the scheduled bid opening.

The successful Bidder will be required to furnish satisfactory performance and labor and material bonds in the amount of 100% of the bid price and satisfactory insurance coverage.

Precondition for entering into a contract with the City of Ann Arbor: (i) compliance with Chapter 112 of Title IX of the Code of the City of Ann Arbor. (ii) compliance with applicable prevailing wage and living wage requirements of Chapter 23 of Title I of the Code of the City of Ann Arbor. Further information is outlined in the contract documents.

After the time of opening, no Bid may be withdrawn for a period of 90 days. The City reserves the right to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

Any further information may be obtained from the Ann Arbor Procurement Office, (734) 794-6500

CITY OF ANN ARBOR, MICHIGAN

Version 01/2010

AD-1

NOTICE OF PRE-BID CONFERENCE

A pre-bid conference for this project will be held on Thursday, April 25, 2013 at 2:00 p .m. in the 4th floor Conference Room, located at, 301 E. Huron Street, Ann Arbor, Michigan 48104.

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

INSTRUCTIONS TO BIDDERS

General

Work to be done under this Contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents. All work to be done under this Contract is located in or near the City of Ann Arbor.

The City shall make available to all prospective Bidders, prior to receipt of the Bids, access to the area in which the work is to be performed. Advance notice should be given to the Administering Service Area/Unit in cases where access to the site must be arranged by the City.

Any Bid which does not conform fully to these instructions may be rejected.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarification on ITB Specifications

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before 5/7/13 by 10am and should be addressed as follows:

Specification/Scope of Work questions emailed to ikotlyar@a2gov.org

Bid Process and HR Compliance questions emailed to Klancaster@a2gov.org

Addenda

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

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than written addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or Wednesday, May 8, 2013 by 11:00 am. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and one (1) Bid copy in a sealed envelope clearly marked: **ITB 4288 – West Madison Street Improvements project**.

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit, 5th Floor
301 East Huron Street
P.O. Box 8647
Ann Arbor, MI 48107

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

Hand delivered bids will be date/time stamped/signed at the address above in order to be considered. Normal business hours are 8:00 a.m. to 4:00 p.m. Monday through Friday except Holidays. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines that circumstances warrant it.

Award

The City intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The City may also utilize alternatives offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the City. For unit price bids, the contract will be awarded based upon the unit prices and the lump sum prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the City. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing Bids, the City will give consideration to alternate Bids for items listed in the bid forms.

Official Documents

The City of Ann Arbor shall accept no alternates to the bid documents made by the Bidder unless those alternatives are set forth in the "Alternate" section of Bid form.

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. . If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid.

Bid Security

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

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of 90 days, as specified in the Advertisement.

Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-1, Article III of the Contract. If these time requirements can not be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

Liquidated Damages

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

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

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

Human Rights Information

Section 5, beginning at page GC-3, outlines the requirements for fair employment practices under City of Ann Arbor Contracts. To establish compliance with this Ordinance, the Bidder must complete and return with its bid completed copies of the Human Rights Division Contract Compliance Forms (Appendix A and B) or an acceptable equivalent. In the event the Human Rights forms are not submitted with the bid, the bidder will have 24 hours to submit upon notice from the City.

Wage Requirements

Section 4, beginning at page GC-1, outlines the requirements for payment of prevailing wages or of a “living wage” to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Major Subcontractors

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor and the approximate dollar value of each subcontract.

Debarment

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

Disclosures

After bids are opened, all information in a bidder’s bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) know as the “Freedom of Information Act.” The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

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

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

INVITATION TO BID

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

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including Advertisement, Human Rights Division Contract Compliance Forms, Notice of Pre-Bid Conference, Instructions to Bidders, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans and understands them.

The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

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

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

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

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

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:319 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting

requirements stated in the City Code provisions cited. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

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

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

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

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

SIGNED THIS _____ DAY OF _____, 201__.

Bidder's Name

Official Address

Telephone Number

Authorized Signature of Bidder

(Print Name of Signer Above)

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other two.)

Bidder declares that it is:

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

* A partnership, list all members and the street and mailing address of each:

Also identify the County and State where partnership papers are filed:

County of _____, State of _____

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

BID FORM

Section 1 - Schedule of Prices

Item	Description	Unit	Estimated Quantity	Unit Price	Total Cost
114	Type A Lighted Arrow Board, Furnished & Operated	EA	2	\$	\$
130	Protective Fencing	LF	2000	\$	\$
135	Tree Removal, 8" and larger	EA	8	\$	\$
140	Exploratory Excavations (0-10deep)	EA	30	\$	\$
201	Project Supervision, Max. \$ 40,000	LS	1	\$	\$
202	General Conditions, Max. \$ 80,000	LS	1	\$	\$
203	Minor Traffic Control, Modified, Max. \$ 40,000	LS	1	\$	\$
204	Audiovisual Tape Coverage	LS	1	\$	\$
205	Visual Tape Coverage Sanitary/Storm Private Sewer Leads	EA	50	\$	\$
207	Machine Grading Modified	SY	12000	\$	\$
208	Stone Reservoir 6A	CY	850	\$	\$
209	Biaxial or Triaxial Geo Grid Stabilizer	SY	600	\$	\$
210	Infiltration Trench	LF	150	\$	\$
211	Infiltration Trench Undercutting	CY	100	\$	\$
212	Subgrade Undercutting - Type II	CY	1600	\$	\$
213	Temporary 4 inch or 6 inch Water Main Line Stop	EA	10	\$	\$
214	6' Storm Water Treatment Device	EA	1	\$	\$
215	Non-Woven Geotextile Fabric Separator	SY	1700	\$	\$
220	HMA Pavement Base Course 3E-1	TON	1800	\$	\$
221	HMA Pavement Leveling Course 4E-1	TON	1500	\$	\$
222	HMA Pavement Wearing Course 5E-3	TON	1200	\$	\$
223	Temporary HMA Pavement	TON	100	\$	\$
230	Remove Concrete Curb or Curb & Gutter - Any Type	LF	6859	\$	\$
231	Remove Concrete Sidewalk & Driveways - Any Thickness	SF	17680	\$	\$
232	Concrete Curb or Curb & Gutter - Any Type	LF	6000	\$	\$
233	Concrete M-opening High Early	LF	859	\$	\$
234	4 -Inch Concrete Sidewalk	SF	9187	\$	\$
235	6 -Inch Concrete Sidewalk, Ramp, or Drive	SF	2559	\$	\$
236	6 -Inch Concrete Sidewalk, Ramp, or Drive High Early	SF	5658	\$	\$
237	8-Inch Concrete Sidewalk, Ramp, or Drive High Early	SF	276	\$	\$
238	Integral Sidewalk Retaining Wall 6 inch to 18 inch	LF	80	\$	\$
240	Detectable Warnings Surface	SF	550	\$	\$
241	Adjust Structure Cover	EA	17	\$	\$
242	Adjust Curb Inlet Structure Cover	EA	2	\$	\$
243	Adjust Monument Box, Gate Valve Box or Gas Box	EA	17	\$	\$
244	Structure Covers	LBS	8000	\$	\$
251	Abandon Fire Hydrant	EA	4	\$	\$
252	Sewer Bulkhead, 4-inch through 18-inch Diameter	EA	10	\$	\$
253	2' Diameter Leaching Basin	EA	7	\$	\$
254	6-inch Wrapped Underdrain	LF	1746	\$	\$
255	4 or 6 inch sanitary sewer lead R/R in Trench	EA	51	\$	\$

TOTAL THIS PAGE \$ _____

(Also Enter on BF-3)

BID FORM

Section 1 - Schedule of Prices

Item	Description	Unit	Estimated Quantity	Unit Price	Total Cost
260	Sand Subbase Course, Class II - CIP	CY	4000	\$	\$
261	21AA Limestone - C.I.P.	CY	200	\$	\$
262	Aggregate Base Course, 21AA - C.I.P.	CY	3400	\$	\$
270	"No Parking" Signs	EA	28	\$	\$
271	Portable, Changeable Message Sign, Furn. & Oper.	EA	6	\$	\$
272	Plastic Drum - Lighted, Furnished and Operated	EA	150	\$	\$
273	Type III Lighted Barricade, Furnished & Operated	EA	18	\$	\$
274	Temporary Type B Signs	SF	1380	\$	\$
280	Rain Garden Weir Wall, Conc	EA	7	\$	\$
281	Rip-Rap Plain Modified	CY	30	\$	\$
282	Planting, Tree	EA	14	\$	\$
286	Planting, Plug	EA	300	\$	\$
287	Mulch, Modified	SY	150	\$	\$
288	Watering & Cultivating, First Season, Min. \$5,000, Modi	LS	1	\$	\$
289	Watering & Cultivating, Second Season, Min. \$5,000, M	LS	1	\$	\$
290	Rain Garden	SF	1600	\$	\$
290	Mulch Blanket, Modified	SY	6000	\$	\$
292	Bioretention Site Preparation	SY	200	\$	\$
293	Spillway, Concrete	EA	7	\$	\$
295	Brick Pavers, Any Type	SF	1400	\$	\$
305	8 inch SDR 35 PVC Trench Detail 1	LF	80	\$	\$
315	8 inch N 12 HDPE Trench Detail VI	LF	75	\$	\$
320	12 inch Class IV RCP Trench Detail I	LF	486	\$	\$
321	18 inch Class IV RCP Trench Detail I	LF	325	\$	\$
322	24 inch Class IV RCP Trench Detail I	LF	338	\$	\$
323	36 inch Class IV RCP Trench Detail I	LF	196	\$	\$
324	48 inch Class IV RCP Trench Detail I	LF	413	\$	\$
325	15 inch Class IV RCP Trench Detail I	LF	65	\$	\$
335	8 inch x 4 inch SDR 35 PVC Wye	EA	4	\$	\$
353	4 inch SDR 35 PVC Service Lead	LF	110	\$	\$
360	Type I Manhole 0-10 feet Deep 4 foot dia	EA	10	\$	\$
361	Type 1 Manhole Additional Depth	VF	9	\$	\$
362	Type II Manhole 5 and 6 foot dia	EA	9	\$	\$
363	Type II Manhole Additional Depth	VF	9	\$	\$
366	Inlet Junction Chamber	EA	4	\$	\$
367	Single Inlet	EA	25	\$	\$
385	Sewer Pipe Abandonment	LF	3000	\$	\$
386	Sewer Structure Abandonment	EA	49	\$	\$
391	Pipe Undercut & Refill (6AA)	CY	200	\$	\$
400	12 inch, Class 50 DIP w/polywrap, TD-I	LF	690	\$	\$
401	8 inch, Class 50 DIP w/polywrap, TD-I	LF	2700	\$	\$

TOTAL THIS PAGE \$ _____

(Also Enter on BF-3)

BID FORM

Section 1 - Schedule of Prices

Item	Description	Unit	Estimated Quantity	Unit Price	Total Cost
402	6 inch Class 50 DIP w/polywrap, TD-I	LF	70	\$	\$
403	4 inch Class 50 DIP w/polywrap, TD-I	LF	20	\$	\$
413	12" 22.5° Bend	EA	4		
414	12" 45° Bend	EA	22	\$	\$
415	8" 90° Bend	EA	2		
416	8" 22-1/2° Bend	EA	6	\$	\$
417	8" 11-1/4° Bend	EA	4	\$	\$
418	8" 22-1/2° Bend	EA	4	\$	\$
419	8" 45° Bend	EA	53	\$	\$
420	8" x 6" Reducer	EA	18	\$	\$
421	8" X 4" Reducer	EA	1	\$	\$
422	12" x 8" Reducer	EA	1	\$	\$
423	12" x 6" Reducer	EA	1	\$	\$
432	8" x 8" x 8" Tee	EA	14	\$	\$
433	12" x 12" x 12" Tee	EA	5	\$	\$
434	12"x12"x12"x12" cross	EA	1	\$	\$
436	12" x 12" x 8" Tee	EA	3	\$	\$
440	Fire Hydrant Assembly	EA	7	\$	\$
442	12" Gate Valve-in Box	EA	5	\$	\$
443	8" Gate Valve-in Box	EA	17	\$	\$
448	12" Gate Valve-in Well	EA	1	\$	\$
449	8" Gate Valve-in Well	EA	1	\$	\$
450	12" x 6" Tapping Sleeve and Valve in Box	EA	1	\$	\$
451	12" x 8" Tapping Sleeve and Valve in Box	EA	1	\$	\$
460	Excavate and Backfill for Water Services and Leads	LF	570	\$	\$
481	Water Main Pipe Abandonment	LF	3480	\$	\$
482	Gate Valve-in-Box Abandonment	EA	3	\$	\$
483	Gate Valve-in-Well Abandonment	EA	12	\$	\$
564	Reconstruct Structure	EA	2	\$	\$
590	Cold Plastic Pavt. Mrkg Bike Symbol with Arrow	EA	8	\$	\$
591	Pavt. Mrkg Inlaid Cold Plastic Sharrow White	EA	8	\$	\$
595	Hot-Applied, Thermoplastic Pavement Markings 4 inch Yellow	LF	3800	\$	\$
596	Hot-Applied, Thermoplastic Pavement Markings 6 inch White	LF	2465	\$	\$
597	Hot-Applied, Thermoplastic Pavement Markings 24 inch White	LF	860	\$	\$
598	Hot-Applied, Thermoplastic Pavement Markings Arrow Symbol White	EA	5	\$	\$
599	Hot-Applied, Thermoplastic Pavement Markings Only Legend White	EA	5	\$	\$
613	3 inch Schedule 80 PVC Conduit	LF	100	\$	\$
703	Inlet Filter	EA	30	\$	\$
800	Silt Fence	LF	1000	\$	\$
882	Seeding and Mulching	SY	6000	\$	\$
891	Cleanup & Restoration	LS	1	\$	\$

TOTAL THIS PAGE \$ _____

TOTAL FROM PAGE BF-1 \$ _____

TOTAL FROM PAGE BF-2 \$ _____

TOTAL BASE BID : \$ _____

BID FORM

Section 2 - Material and Equipment Alternates

The Base Bid price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the contract.

Signature of Authorized Representative of Bidder

BID FORM

Section 3 - Time Alternate

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-1, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the contract.

Signature of Authorized Representative of Bidder

BF-5

BID FORM

Section 4 - Subcontractors

For purposes of this contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified.

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
---	-------------	---------------

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the contract.

Signature of Authorized Representative of Bidder

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 200_, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 E. Huron Street, Ann Arbor, Michigan 48104 (“City”) and _____ (“Contractor”)

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

(Address)

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

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled “South Fourth Avenue Improvements Project” in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Human Rights Division Contract

Compliance Forms

Living Wage Declaration of

Compliance Forms

(if applicable)

Bid Forms

Contract and Exhibits

Bonds

General Conditions

Standard Specifications

Detailed Specifications

Plans

Addenda

ARTICLE II - Definitions

Administering Service Area/Unit means Project Management Services Unit

Supervising Professional means Project Management Services Unit Manager acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Project means West Madison Street Improvements Project. Bid No. ITB - 4288

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within scheduling requirements as specified in the Detailed Specifications.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the

Contractor to pay the City, as liquidated damages and not as a penalty, an amount specified in Detailed Specification for Project Schedule and Payment shown on Page DS-1. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

As an independent requirement, where the Detailed Specifications identify certain portions of the work to be completed within a shorter period of time and the Contractor fails to complete each portion within the shorter period specified for each portion, including any extension granted in writing by the Project Supervisor, the City is entitled to deduct from the monies due the Contractor, as liquidated damages and not as a penalty, the amount identified in the Detailed Specifications for each portion of the work not timely completed for each calendar day of delay in completion of each portion of the work.

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

Liquidated damages under this section are in addition to any liquidated damages due under Section 5 of the General Conditions.

ARTICLE IV - The Contract Sum

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

_____ Dollars (\$_____)

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the contract documents.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted without the written consent of the City.

ARTICLE VI - Choice of Law

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

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

ARTICLE VII - Relationship of the Parties

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

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

ARTICLE VIII - Notice

All notices given under this contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the contract documents or other address the Contractor may specify in writing.

ARTICLE IX - Indemnification

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

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations or agreements whether written or oral. Neither party has relied on any prior representations in entering into this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
John Hieftje, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
Steven D. Powers, City Administrator

By _____
Craig Hupy
Public Services Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

PERFORMANCE BOND

- (1) _____ of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written contract with the City dated _____, 20__, for: West Madison Street Improvements Project and this bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20__.

(Name of Surety Company)

(Name of Principal)

By

(Signature)

By

(Signature)

Its

(Title of Office)

Its

(Title of Office)

Name and address of agent:

Approved as to form:

Stephen K. Postema, City Attorney

LABOR AND MATERIAL BOND

(1) _____ of
_____, (referred to as "Principal"), and
_____, a corporation duly authorized to do business in the State of
Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"),
for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended,
being MCL 129.201 et seq., in the amount of

\$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors,
administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written contract with the City, dated _____, 20___, for
West Madison Street Improvements Project; and this bond is given for that contract in compliance
with Act No. 213 of the Michigan Public Acts of 1963 as amended;

(3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under
the contract, the Surety shall pay those claimants.

(4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation
if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 20___.

(Name of Surety Company)

(Name of Principal)

By
(Signature)

By
(Signature)

Its
(Title of Office)

Its
(Title of Office)

Approved as to form:

Name and address of agent:

Stephen K. Postema, City Attorney

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

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

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

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

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

Section 2 - Order of Completion

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

Section 3 - Familiarity with Work

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

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

Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section."

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

Further, to the extent that any employees of the Contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with Section 1:319 of Chapter 14 of Title I of the Code of the City of Ann Arbor, the Contractor agrees to conform to Chapter 23 of Title I of the Code of the City of Ann Arbor, as amended, which in part states:

1:814. Applicability.

- (1) This Chapter shall apply to any person that is a contractor/vendor or grantee as defined in Section 1:813 that employs or contracts with five (5) or more individuals; provided, however, that this Chapter shall not apply to a non-profit contractor/vendor or non-profit grantee unless it employs or contracts with ten (10) or more individuals.
- (2) This Chapter shall apply to any grant, contract, or subcontract or other form of financial assistance awarded to or entered into with a contractor/vendor or grantee after the effective date of this Chapter and to the extension or renewal after the effective date of this Chapter of any grant, contract, or subcontract or other form of financial assistance with a contractor/vendor or grantee.

1:815. Living Wages Required.

- (1) Every contractor/vendor or grantee, as defined in Section 1:813, shall pay its covered employees a living wage as established in this Section.
 - (a) For a covered employer that provides employee health care to its employees, the living wage shall be \$9.42 an hour, or the adjusted amount hereafter established under Section 1:815(3).
 - (b) For a covered employer that does not provide health care to its employees, the living wage shall be \$10.91 a hour, or the adjusted amount hereafter established under Section 1:815(3).
- (2) In order to qualify to pay the living wage rate for covered employers providing employee health care under subsection 1:815(1)(a), a covered employer shall furnish proof of said health care coverage and payment therefor to the City Administrator or his/her designee.

- (3) The amount of the living wage established in this Section shall be adjusted upward no later than April 30, 2002, and every year thereafter by a percentage equal to the percentage increase, if any, in the federal poverty guidelines as published by the United States Department of Health and Human Services for the years 2001 and 2002. Subsequent annual adjustments shall be based upon the percentage increase, if any, in the United States Department of Health and Human Services poverty guidelines when comparing the prior calendar year's poverty guidelines to the present calendar year's guidelines. The applicable percentage amount will be converted to an amount in cents by multiplying the existing wage under Section 1.815(1)(b) by said percentage, rounding upward to the next cent, and adding this amount of cents to the existing living wage levels established under Sections 1:815(1)(a) and 1:815(1)(b). Prior to April 1 of each calendar year, the City will notify any covered employer of this adjustment by posting a written notice in a prominent place in City Hall, and, in the case of a covered employer that has provided an address of record to the City, by a written letter to each such covered employer.

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

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of Section 209 of the Elliot-Larsen Civil Rights Act (MCL 37.2209). The Contractor further agrees to the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to take affirmative action to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment. The Contractor agrees to comply with the provisions of Section 9:161 of Chapter 112 of the Ann Arbor City Code and in particular the following excerpts:

9:161 NONDISCRIMINATION BY CITY CONTRACTORS

- (1) All contractors proposing to do business with the City of Ann Arbor shall satisfy the nondiscrimination administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All contractors shall receive approval from the Director prior to entering into a contract with the City, unless specifically exempted by administrative policy. All City contractors shall take affirmative action to insure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.
- (2) Each prospective contractor shall submit to the City data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Director concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, said contractor shall be accepted by the Director as having fulfilled affirmative action requirements for a period of one year at which time the Director shall conduct another review. Other contractors shall develop an affirmative action program in conjunction with the Director. Said program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said

goals shall reflect the availability of minorities and females within the contractor's labor recruitment area. In the case of construction contractors, the Director shall use for employment verification the labor recruitment area of the Ann Arbor-Ypsilanti standard metropolitan statistical area. Construction contractors determined to be in compliance shall be accepted by the Director as having fulfilled affirmative action requirements for a period of six (6) months at which time the Director shall conduct another review.

- (3) In hiring for construction projects, contractors shall make good faith efforts to employ local persons, so as to enhance the local economy.
- (4) All contracts shall include provisions through which the contractor agrees, in addition to any other applicable Federal or State labor laws:
 - (a) To set goals, in conference with the Human Resources Director, for each job category or division of the work force used in the completion of the City work;
 - (b) To provide periodic reports concerning the progress the contractor has made in meeting the affirmative action goals it has agreed to;
 - (c) To permit the Director access to all books, records and accounts pertaining to its employment practices for the purpose of determining compliance with the affirmative action requirements.
- (5) The Director shall monitor the compliance of each contractor with the nondiscrimination provisions of each contract. The Director shall develop procedures and regulations consistent with the administrative policy adopted by the City Administrator for notice and enforcement of non-compliance. Such procedures and regulations shall include a provision for the posting of contractors not in compliance.
- (6) All City contracts shall provide further that breach of the obligation not to discriminate shall be a material breach of the contract for which the City shall be entitled, at its option, to do any or all of the following:
 - (a) To cancel, terminate, or suspend the contract in whole or part and/or refuse to make any required periodic payments under the contract;
 - (b) Declare the contractor ineligible for the award of any future contracts with the City for a specified length of time;
 - (c) To recover liquidated damages of a specified sum, said sum to be that percentage of the labor expenditure for the time period involved which would have accrued to minority group members had the affirmative action not been breached;

(d) Impose for each day of non-compliance, liquidated damages of a specified sum, based upon the following schedule:

<u>Contract Amount</u>	<u>Assessed Damages Per Day of Non-Compliance</u>
\$ 10,000 - 24,999	\$ 25.00
25,000 - 99,999	50.00
100,000 - 199,999	100.00
200,000 - 499,999	150.00
500,000 - 1,499,999	200.00
1,500,000 - 2,999,999	250.00
3,000,000 - 4,999,999	300.00
5,000,000 - and above	500.00

(e) In addition the contractor shall be liable for any costs or expenses incurred by the City of Ann Arbor in obtaining from other sources the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under this contract.

Section 6 - Materials, Appliances, Employees

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

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

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

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

Section 8 - Royalties and Patents

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

Section 9 - Permits and Regulations

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

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

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

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

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

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

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

Section 11 - Inspection of Work

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

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

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

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

Section 12 - Superintendence

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

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

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

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

Section 14 - Extension of Time

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

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

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

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

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section 13. No claim shall be valid unless so made.

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

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and

shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;

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

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

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

Section 16 - Progress Payments

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

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion

of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

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

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

Section 17 - Deductions for Uncorrected Work

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

Section 18 - Correction of Work Before Final Payment

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

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

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

Section 19 - Acceptance and Final Payment

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

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

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

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

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

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

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

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

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

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

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

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

Section 22 - Contractor's Right to Terminate Contract

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

Section 23 - City's Right To Do Work

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

Section 24 - Removal of Equipment and Supplies

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

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

Section 25 - Responsibility for Work and Warranties

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

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days.

The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

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

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the

Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

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

Section 27 - Payments Withheld Prior to Final Acceptance of Work

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

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

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

Section 28 - Contractor's Insurance

- A. The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself from all claims for bodily injuries, death or property damage which may arise under this Contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:
 1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit
 2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further, the following minimum limits of liability are required:

\$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.

\$2,000,000 Per Job General Aggregate

\$1,000,000 Personal and Advertising Injury

\$2,000,000 Products and Completed Operations Aggregate

3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.
 4. Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.
- B. Insurance required under Section A.2 and A.3 of this Contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.
- C. In the case of all Contracts involving on-site work, the Contractor shall provide to the City before the commencement of any work under this Contract documentation demonstrating it has obtained the above mentioned policies. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.
- D. Any Insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

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

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

Section 30 - Damage Claims

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

Section 31 - Refusal to Obey Instructions

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

Section 32 - Assignment

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

Section 33 - Rights of Various Interests

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

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

Section 34 - Subcontracts

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

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

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

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

Section 35 - Supervising Professional's Status

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

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

Section 36 - Supervising Professional's Decisions

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

Section 37 - Storing Materials and Supplies

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

Section 38 - Lands for Work

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

Section 39 - Cleaning Up

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

Section 40 - Salvage

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

Section 41 - Night, Saturday or Sunday Work

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

Section 42 - Sales Taxes

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

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor, _____, represents that on _____, 20_____, it was awarded a contract by the City of Ann Arbor, Michigan to _____ under the terms and conditions of a Contract titled West Madison Street Improvements Project.

The Contractor represents that all work has now been accomplished and the Contract is complete.

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

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

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

Contractor
By
(Signature)
Its
(Title of Office)

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

Notary Public

County, MI
My commission expires on:

STANDARD SPECIFICATIONS

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

A copy of the Public Services Department Standard Specifications may be purchased from the Engineering Division, (Fourth Floor, City Hall, Ann Arbor, Michigan), for \$35.00 per copy. In addition, a copy of these Standard Specifications is available for public viewing at the Engineering Division office, for review Monday through Friday between the hours of 8:30 a.m. and 4:00 p.m.

Copies of the Standard Specifications can also be downloaded from the web link:

http://www.a2gov.org/government/publicservices/project_management/privatedev/pages/standardspecificationsbook.aspx.

**DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT**

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

1. By no later than **June 33, 2013** the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule each week and present it to the Engineer at the weekly progress meeting.
2. The Contractor will receive two (2) copies of the Contract, for his/her execution, on or before **Aug 8, 2013**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificate, to the City by **June 3, 2013**.
3. Contractor may begin construction on West Madison Street on or after **June 46, 2013** and only after receiving the copy of executed contract documents and the Notice to Proceed from the City. Appropriate time extensions shall be granted if the Notice to Proceed is delayed due to the circumstances controlled by the City.
4. Within **52** calendar days from the date of Notice to Proceed for the work at West Madison Street, the Contractor must complete the following tasks: install, swab, chlorinate, pressure test, and flush the new water main pipe. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer shall entitle the City to deduct from the payments due the Contractor **\$350.00** in "Liquidated Damages", and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.
5. After the completion of all work outlined in step 4, the Contractor must successfully complete of all required bacteriological testing and place the new water main into service.
6. By **October 31, 2013** or within **140** calendar days from the date of Notice to Proceed for the work at West Madison Street, the Contractor must connect all water service leads to the new main and complete all the remaining work under this Contract for West Madison Street including, but not limited to installation of the storm water management system, the restoration of all disturbed areas, permanent placement of hot mix asphalt and/or concrete, and the removal of any and all traffic control devices. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$350.00** in "Liquidated Damages", and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.

The Contractor may propose to adjust the limits or sequencing of construction in order to complete the work more efficiently. Changes to the recommended construction sequence must be approved in writing by the Engineer prior to construction and must assure all required coordination with other projects and time lines.

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 in order to complete the project by the final completion date. Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

If the City elects to terminate this Construction Contract due to non-performance, contract items paid for on a Lump Sum basis will be pro-rated based on percentage equal to the percentage of the contract work completed.

**DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC**

DESCRIPTION

Traffic shall be maintained in accordance with the City of Ann Arbor Public Services Department Standard Specifications except as specified in Sections 103.05, 810, 812, 919, and 920 of the Michigan Department of Transportation (MDOT), 2003 Standard Specifications for Construction, the 2005 Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and as amended herein.

The Contractor shall furnish, erect, maintain and, upon completion of the work, remove all traffic control devices and barricade lights within the project and around the perimeter of the project for the safety and protection of local traffic. This includes, but is not limited to, advance, regulatory, and warning signs; barricades and channeling devices at intersecting streets on which traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets, and moving traffic control devices for construction operations.

MATERIALS

The materials and equipment shall meet the requirements specified in the corresponding sections of the MDOT 2003 Standard Specifications for Construction and the 2005 Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

Lighted plastic drum barricades meeting current MDOT and MMUTCD specifications shall be used on this project as Type II Barricades.

Maintenance of Local Traffic

Unless otherwise indicated on the plans, all side roads shall not be closed to through traffic except during construction operations of short duration and only upon written approval of the Engineer.

Local access shall be maintained at all times for emergency vehicles, refuse pick-up, mail delivery and ingress/egress to private properties.

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

Driveways shall not be blocked for extended periods of time unless arrangements can be made with the affected property owner(s). When it becomes necessary to temporarily block driveways, the Contractor shall notify the affected property owners in advance to coordinate the work and allow sufficient time for vehicles to vacate from properties. It may be necessary to allow for vehicles to temporarily park in the roadway at locations that do not interfere with the Contractor's work. During these periods the owners of the respective vehicles must be available to, with proper notice, move their vehicles if it becomes necessary to accommodate the work.

During the construction of the water main, parking of residences in the construction area will not be allowed. Temporary "No Parking" signs will be supplied by the City. Any vehicle parked in the construction zone shall be ticketed and towed at the owner's expense.

At times when it becomes necessary to temporarily obstruct local traffic during the performance of the work, the Contractor shall provide flag control in conformance with Part VI of the MMUTCD, Sections 6F-1 thru 6F-7. A minimum of two flaggers are required. The cost of flag control shall be included in the contract pay item "Item No. 203, Minor Traffic Control"

The Contractor shall use quantities of dust palliative, maintenance aggregate, and cold patching mixture for use as temporary base, surfacing, and dust control at utility crossings, side roads and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local access. The cost for the use of dust palliative, maintenance aggregate and HMA 13A mixture, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in contract pay item "Item No 202, General Conditions," and it will not be paid for separately.

The work of maintaining and relocating existing warning, regulatory and/or guide signs; and of removing, salvaging and reinstalling existing signs and supports is included in the bid price for the contract pay item "Item No. 203, Minor Traffic Control."

Mailboxes and newspaper boxes that are in the way of the construction shall be removed and reset immediately in a temporary location approved by the Engineer. Mail and paper delivery shall not be interrupted during the construction. Upon completion of the construction, all mailboxes and newspaper boxes, including their supports, shall be repositioned in their permanent locations as approved by the Engineer. This work shall be included in the contract unit price for the contract pay item "Item No 202, General Conditions," and it will not be paid for separately.

The Contractor shall perform the work of this Contract while maintaining traffic in accordance with the Contract Documents as specified herein. No traffic shall be allowed on newly placed asphalt surfaces until rolling has been satisfactorily completed and the surface has cooled sufficiently to prevent damage from traffic. This is to be accomplished by flag persons and by relocating traffic control devices to prevent traffic from entering the work area until such time that it can be safely maintained without damaging the new construction. The Contractor shall provide traffic regulators in sufficient number to maintain traffic as described herein, and to keep traffic off sections being surfaced, and provide for safe travel at all times as directed by the Engineer.

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

There may be areas where the Engineer directs the paving of less than the full width of a phase to stagger the paving joints and to accommodate changes in crown and/or cross-sectional dimensions/locations. In these locations the gravel base courses shall be constructed to the full area of the phase, and the Contractor shall place traffic control devices on the base course grade as necessary, and shall place, maintain, and remove maintenance aggregate (MDOT 21AA) all as necessary, and as directed by the Engineer, to maintain local traffic to side streets and drives.

The City will not allow any shut down of existing water mains without prior written approval of construction methods and timing of shut down, by the City of Ann Arbor and the Engineer. All water main valves are to be operated by City of Ann Arbor personnel.

**DETAILED SPECIFICATION
FOR
ITEM #201 - PROJECT SUPERVISION, MAX \$40,000**

DESCRIPTION

The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies.

The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks.

The Project Supervisor shall work exclusively on this project, and shall put forth his/her full effort into the organization and coordination of the work of this project.

Prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the City with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature. The Supervising Professional will have the authority to reject a proposed Project Supervisor whom he/she considers unqualified.

The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination and scheduling of the project for the duration of the Contract. The Contractor shall furnish the City with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.

The Project Supervisor shall be equipped by the Contractor with a mobile telephone to provide the City with 24 hour-per-day access to him/her during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.

The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.

DUTIES AND RESPONSIBILITIES

The Project Supervisor work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature.

The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, HMA concrete, and portland cement concrete materials.

The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors' and suppliers' work forces.

The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles.

The Project Supervisor shall be responsible for the legal, proper and safe parking/storage of all of the Contractor's,

subcontractors' and suppliers' equipment, work vehicles, and employee's vehicles.

The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), and City inspectors.

The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the City to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility.

The Project Supervisor shall coordinate and schedule both Testing inspectors and City inspectors in a timely manner, to assure proper and timely testing and inspection of the work.

The Project Supervisor shall review the Inspector's Daily Reports (IDRs) for accuracy, and shall sign all IDRs on a daily basis as the representative of the Contractor. Items to be reviewed include descriptions, locations and measurements of quantities of work performed, workforce, equipment, and weather. The Project Supervisor shall also be responsible for its subcontractors' review and initialing of IDRs containing work items performed by each respective subcontractors.

The Project Supervisor shall submit to the Engineer, an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis, all in accordance with the Detailed Specification for Project Schedule contained elsewhere herein.

The Project Supervisor shall schedule and chair a weekly progress meeting with the Engineer and all subcontractors to discuss the work. Upon the completion of each meeting, the Project Supervisor shall prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

ADDITIONAL PERFORMANCE REQUIREMENTS

If, in the sole opinion of the Supervising Professional, the Project Supervisor is not adequately performing the duties as outlined in this Detailed Specification, the following system of notices will be given to the contractor with the associated penalties:

First Notice – A warning will be issued in writing to the contractor detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a second notice.

Second Notice – A second warning will be issued in writing to the contractor further detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a third notice. A deduction of 10% will be made from the original Project Supervision contract amount. At this time, the City reserves the right to meet with personnel with the necessary authority within the Contractor's organization to discuss the deficiencies in the Project Supervision.

Third Notice – An additional deduction of 25% will be made from the original Project Supervision contract amount, and the Project Supervisor shall be removed from the project, and replaced immediately with another individual to be approved by the Supervising Professional.

Should, in the sole opinion of the Supervising Professional, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the

above system of notices may be foregone, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the Engineer, shall be considered basis for the Supervising Professional to suspend work without extension of contract time or additional compensation.

MEASUREMENT AND PAYMENT

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

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Project Supervision, Max \$40,000	Lump Sum

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

**DETAILED SPECIFICATION
FOR
ITEM #202 - GENERAL CONDITIONS, MAX \$80,000**

DESCRIPTION

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

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

MEASUREMENT AND PAYMENT

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

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

PAY ITEM

General Conditions, Max \$80,000

PAY UNIT

Lump Sum

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

**DETAILED SPECIFICATION
FOR
ITEM #203 – MINOR TRAFFIC DEVICES, MAX \$40,000**

DESCRIPTION

The work of Minor Traffic Devices shall include, but not be limited to:

- The furnishing and operating of miscellaneous signs, warning devices, flag-persons, and cones;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags;
- Coordinating with the City to have meter heads removed and reinstalled;
- Maintaining pedestrian traffic;
- Temporarily covering traffic controls;
- Temporarily covering existing signs as directed;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

Where there is metered parking, the Contractor shall either rent and install meter bags, or, with the Engineer's authorization, coordinate with the City Transportation Division to have meter heads removed and reinstalled.

The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of flag-persons, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the MMUTCD are included in this detailed specification.

MEASUREMENT AND PAYMENT

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

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

PAY ITEM

PAY UNIT

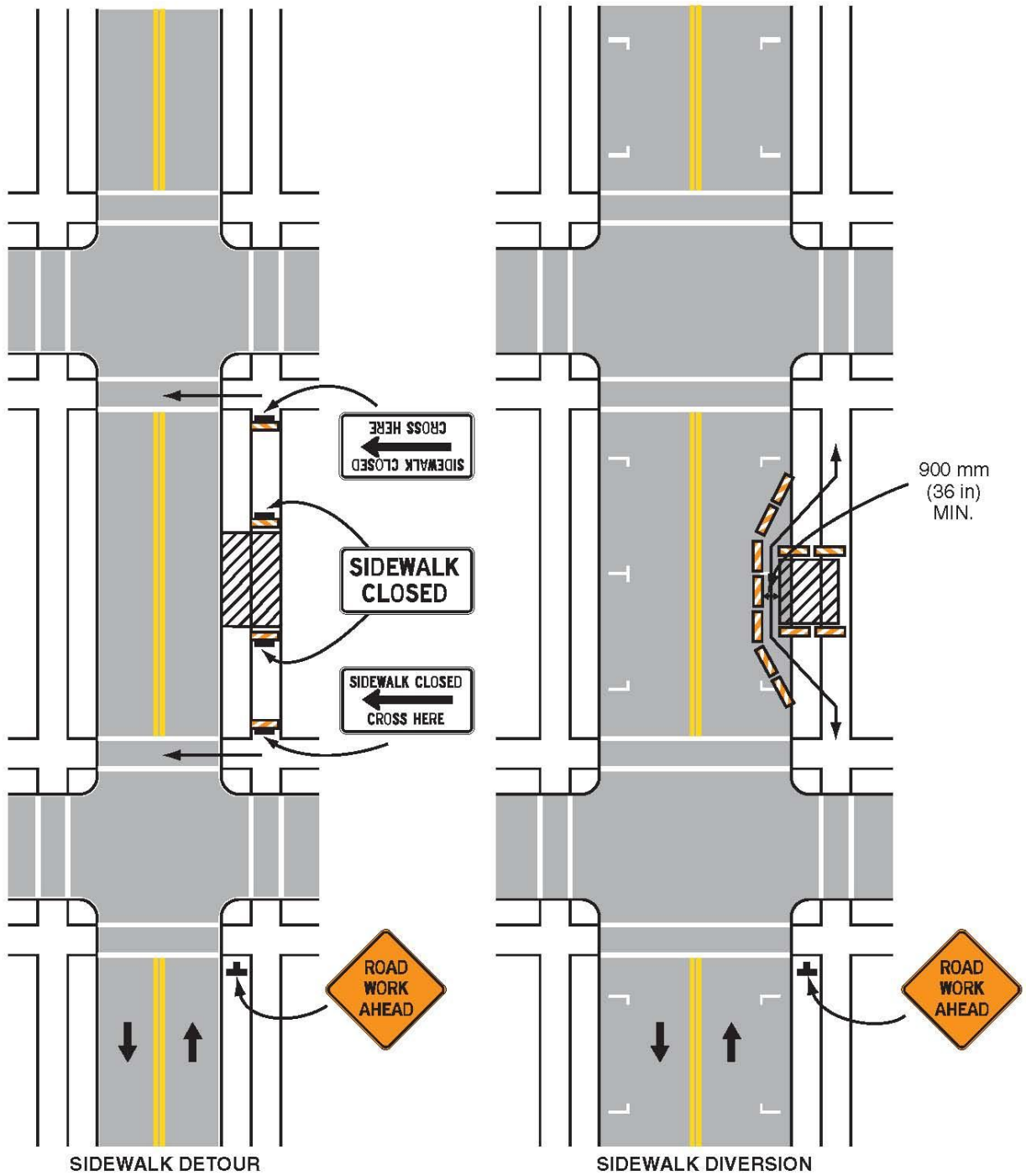
Minor Traffic Devices, Max \$40,000

Lump Sum

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



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

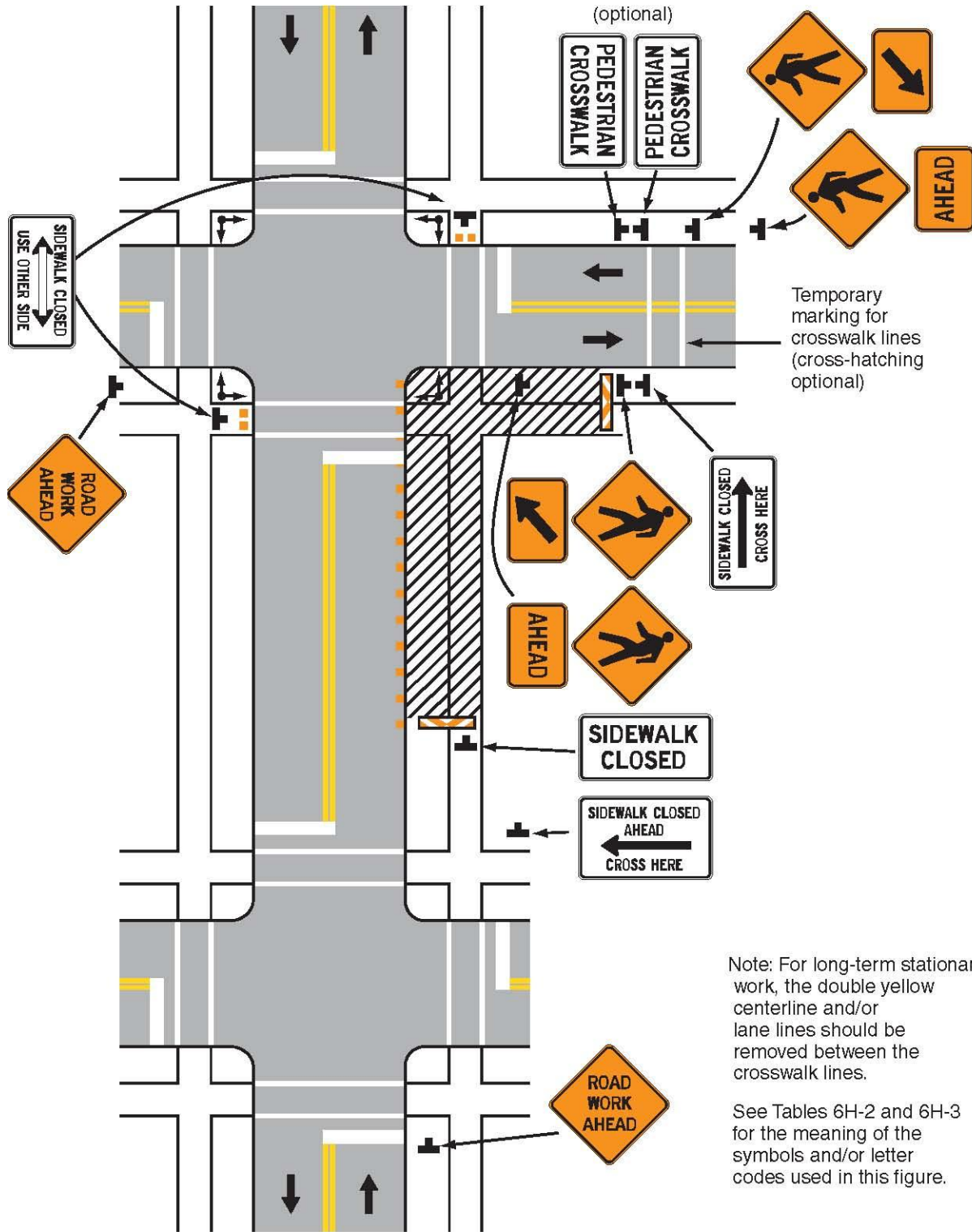


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Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
Page 6H-62 (MI)

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Figure 6H-29. Cross walk Closures and Pedestrian Detours (MI) (TA-29)



Note: For long-term stationary work, the double yellow centerline and/or lane lines should be removed between the crosswalk lines.

See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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**DETAILED SPECIFICATION
FOR
ITEM #204 – AUDIO VISUAL TAPE COVERAGE**

DESCRIPTION

This work shall include digital audiovisual record of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein. This work will be performed for the entire project limits prior to the start of construction.

The audio-visual filming shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared within the four (4) week period immediately prior to the start of construction
3. Furnished to the Engineer a minimum of one (1) week prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Carried-out under the supervision of the Engineer.

The Contractor shall furnish one (1) copy of the completed audiovisual record to the Engineer. An index of the footage shall be included, which will enable any particular area of the project to be easily found. This includes indexing the files according to street. The Contractor shall retain a second copy of the audiovisual record for his/her own use.

Any portion of the film determined by the Engineer to be unacceptable for the documentation of existing conditions shall be filmed again at the Contractor's sole expense prior to mobilizing onto the site.

PRODUCTION

The audio-visual filming shall be completed in accordance with the following minimum requirements:

1. DVD Format, No Editing - The filming shall be done in color using equipment that allows audio and visual information to be recorded. Splicing or editing of the tape shall not be allowed and the speed and electronics of the videotaping equipment and DVD shall be equal to that which is standard to the video taping industry.
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 filming must proceed in the general direction of travel at a speed not to exceed 48 feet per minute. Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.
3. Display - The recording equipment shall have transparent time, date stamp and digital annotation capabilities. The final copies of the tape 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, where applicable, shall be included in the lower half of the frame in standard format (i.e. 1+00). Below the stationing periodic information is to be shown, including project name, name of area shown, street address, direction of travel, viewing direction, etc.

If in the event, the stationing has not been established on-site, refer to the plans and approximate the proposed stationing.

4. Audio Commentary / Visual Features. Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the filming route. Additional audio commentary shall be provided as necessary during filming to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.
5. Visibility / Ground Cover - The filming shall be performed during a time of good visibility. Filming shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being filmed. The Contractor shall notify the Engineer in writing in the event that the weather or snow cover is anticipated to cause a delay in filming.

COVERAGE

The audio-visual film coverage shall include the following:

1. General Criteria - This general criteria shall apply to all filming and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked and or where materials will be stored. The filming shall extend an additional 50 feet outside of all areas. The filming shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, public signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.
2. Other Areas - The Contractor shall film at his sole expense other areas where, in his/her opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.
3. Street List – This item shall include the filming all of the streets as listed in the Detailed Specification for Progress Schedule and Construction Limits.

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

AUDIOVISUAL FILMING SERVICES

The following companies are known to be capable of providing the filming services required by this Detailed Specification and shall be utilized, unless the Contractor receives prior written approval from the Engineer to utilize another company of comparable or superior qualifications.

Construction Video Media
 Midwest Company
 Topo Video, Inc.
 Video Media Corp.

MEASUREMENT AND PAYMENT

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

PAY ITEM

PAY UNIT

Audiovisual Tape Coverage

Lump Sum

Audiovisual Tape Coverage shall include all labor, equipment, and materials required to perform the filming and to provide the finished videotape the Engineer. The unit price includes filming the entire project limits, for each and every street, as described above.

**DETAILED SPECIFICATION
FOR
ITEM #205 – VISUAL TAPE COVERAGE SANITARY/STORM PRIVATE SEWER LEADS**

DESCRIPTION

This work shall include digital visual record of sewer leads in Madison Street R.O.W and adjacent side streets. It is Contractor's responsibility to schedule this work with homeowner to gain access to the lead. This item will also include cleaning of the lead and removal and replacement of access cap if needed. This work will be performed on sewer service leads that fall inside construction limits as directed by Engineer.

The visual filming shall be:

5. Of professional quality, providing a clear, accurate and visual record of existing lead from sewer main to R.O.W line.
1. Carried-out under the supervision of the Engineer.
2. Completed and submitted at least 1 week prior to placement of HMA base course.

The Contractor shall furnish one (1) copy of the completed visual record to the Engineer. An index of the footage shall be included with visual record indicating lead location by address and any defects located by distances. The Contractor shall retain a second copy of the audiovisual record for his/her own use.

Any portion of the film determined by the Engineer to be unacceptable for the documentation of existing conditions shall be filmed again at the Contractor's sole expense.

MEASUREMENT AND PAYMENT

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

PAY ITEM

PAY UNIT

Visual Tape Coverage Sanitary/Storm Private Sewer Leads.

Each

Visual Tape Coverage shall include all labor, equipment, and materials required to perform the filming and to provide the finished videotape to the Engineer.

**DETAILED SPECIFICATION
FOR
ITEM #207 – MACHINE GRADING, MODIFIED**

DESCRIPTION

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

CONSTRUCTION METHOD

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

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

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

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

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

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

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

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

the implementation of these procedures.

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

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

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

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

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots 2 inches or larger in size.

Butt joints are included in the pay item "Machine Grading".

Topsoil, seeding and mulch shall be paid for as part of the item "Clean-Up & Restoration, Special".

MEASUREMENT AND PAYMENT

Measurement for payment for the item "Machine Grading" shall be the computed in square yard quantity of excavated material (pavement, soil, rock, brick, etc.) from the top of existing grade down to the bottom of the excavation. Embankment, fill, subgrade protection/maintenance, drainage maintenance, topsoil, seeding, and restoration quantities will not be paid for separately, and are included in this item of work.

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

PAY ITEM

Machine Grading Modified

PAY UNIT

Square Yard

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

**DETAILED SPECIFICATION
FOR
ITEM #208 – STONE RESERVOIR
ITEM #209 – BIAXIAL OR TRIAXIAL GEOGRID
ITEM #210 – INFILTRATION TRENCH**

DESCRIPTION AND MATERIALS

This work includes subgrade preparation, furnishing and installation of reservoir aggregate, infiltration trench, and geosynthetic materials, as specified herein, as shown on the Plans, and as directed by the Engineer.

RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, City of Ann Arbor Standard Specification, and MDOT 2012 Standard Specifications for Construction (as well as applicable Special Provisions as referenced herein) apply to this Section.

PERFORMANCE REQUIREMENTS

- B. Subgrade Stabilization: The Contractor shall be responsible for providing materials and labor to stabilize subgrade to support paving and construction equipment and limit rutting to meet minimum requirements specified herein.

SUBMITTALS

- C. Aggregates/Sand:
 - 1. Source: Must be MDOT approved.
 - 2. Aggregate gradation and percent voids (porosity).
- D. Admixtures: Certification from MDOT approved supplier.

QUALITY CONTROL/QUALITY ASSURANCE

- E. Installation Personnel Qualifications:
 - 1. Trained and experienced in the fabrication and installation of the materials and equipment.
 - 2. Knowledgeable of the design.
- F. Testing: The City's representative shall perform testing to ensure compliance with the materials specifications as required by the Engineer.
- G. Weight Slips:
 - 1. Furnish weight slips for material incorporated in the Project.
 - 2. Verify that the required tonnage has been applied by calculating and submitting yield for each day of work.

DELIVERY, STORAGE AND HANDLING

- H. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- I. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation.

- J. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

MATERIALS

K. Aggregate/Sand Materials:

1. Reservoir Course:
 - a. MDOT 6A
 - 1) Reservoir course materials and placement shall meet the requirements of MDOT Special Provision 12SP303(A), except as modified herein.
 - 2) Minimum 90% crushed.
 - 3) Voids \geq 30%.
 - 4) Gradation as follows:

Sieve	% Passing
1.5-inch	100
1.0-inch	95-100
0.5-inch	30-60
#4	0-8
Loss by Wash	1.0 max

- b. Thickness in accordance with Drawing for cross section.
 - c. If approved aggregate has less than 30% voids, increase thickness to accommodate design volume as directed by the Engineer at the Contractor's expense.
2. Infiltration Trench:
 - a. MDOT 2NS Sand, CIP
 - b. Thickness: as shown on Plans.

L. Geogrid Reinforcement

1. Polypropylene biaxial or triaxial grid
2. Minimum Properties:
 - a. Minimum Rib Thickness: 0.03 inches (0.76 mm)
 - b. Tensile Strength @2% Strain (ASTM D6637): 280 lbs/ft
 - c. Tensile Strength @5% Strain (ASTM D6637): 580 lbs/ft
 - d. Ultimate Tensile Strength (ASTM D6637): 850 lbs/ft
 - e. Flexural Stiffness (ASTM D5732): 250,000 mg-cm
 - f. Resistance to Installation Damage (ASTM D5818 & D6637): 93%
 - g. Tensar BX1100 or approved equal.

CONSTRUCTION METHODS

PREPARATION

A. Subgrade Preparation:

1. Avoid compaction of subgrade soil unless directed or approved by Engineer.
2. Scarify compacted or disturbed subgrade soils to a minimum depth of 6 inches with York rake; or equivalent method and light tractor.
3. Remove accumulation of fine materials due to ponding or surface erosion with light equipment.
4. Conform to line, grade, and elevations indicated.
 - a. Excavate, fill, re-grade, and scarify areas damaged by erosion, ponding or traffic compaction.
 - b. Use light equipment.
5. Proof Roll:
 - a. To identify soft or unstable areas.

- b. Use light equipment, avoid over compacting subgrade.
- 6. Do not place geotextile or permeable media bed until subgrade surface has been inspected and approved by Engineer.

B. Infiltration Trench

- 1. Begin installation of infiltration trench immediately after approval of subgrade preparation.
- 2. Do not place sand or aggregate materials on a frozen base, subbase, or subgrade.
- 3. Place sand backfill for infiltration trench in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer.
- 4. The loose measure of any layer -- not more than 9-inches nor less than 4-inches.
- 5. Compact sand backfill to a minimum of 95% of the maximum density as per City of Ann Arbor Standard Specifications

C. Permeable Media Installation:

- 1. Place geogrid and reservoir course immediately after installation of infiltration trench.
- 2. Remove any accumulation of debris or sediment which has taken place after approval of subgrade and installation of infiltration trench prior to installation of the geogrid, at the contractor's expense.
- 3. Place geogrid in accordance with Manufacturer's standards and recommendations.
 - a. Overlap Adjacent Strips: Minimum 16 inches.
 - b. Prevent runoff or sediment from entering the storage bed.
- 4. Place reservoir course to grades indicated on Drawings.
 - a. Maximum Lift Thickness: 10 inches.
 - b. Minimum Lift Thickness: 6 inches.
 - c. Compact each layer to a minimum of 95% of the maximum density as per City of Ann Arbor Standard Specifications.
 - d. Fine grade as necessary to conform to elevations and cross section indicated on the Drawings.
 - e. Roll aggregate layer with paving roller until smooth, as directed by Engineer.

- D. Do not place bituminous material until the aggregate surface has been inspected, proof rolled and approved by Engineer.

MEASUREMENT AND PAYMENT

The items of work included in this Detailed Specification shall include all labor, material and equipment needed to accomplish all the work described in this detailed specification, which includes, but is not limited to: furnishing, placement, and compaction of all sand and aggregate materials and furnishing and placement of geogrid;

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

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Stone Reservoir	Cubic Yard
Biaxial or Triaxial Geogrid	Square Yard
Infiltration Trench	Lineal Foot

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

**DETAILED SPECIFICATION
FOR
ITEM #211 – INFILTRATION TRENCH UNDERCUTTING**

DESCRIPTION

This work includes removal of unsuitable materials within the infiltration trench to depths as specified by the Engineer; and backfilling with MDOT 2NS granular material.

CONSTRUCTION METHOD

The Engineer will monitor the excavation of the infiltration trench to determine if suitably permeable soils are encountered at the design depths. If suitable material is not encountered at some locations at the elevations shown on the plans, the Engineer may direct undercuts as necessary.

After undercut areas are excavated to the depths as directed by the Engineer, the areas shall be backfilled with MDOT 2NS granular material and recompact to no less than 95% of its Modified Proctor value. The Contractor shall properly dispose of all excess materials.

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

MEASUREMENT AND PAYMENT

This item of work shall be measured for payment by calculating the volume of the undercut excavation prior to the placement of backfill.

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

PAY ITEM

PAY UNIT

Infiltration Trench Undercutting

Cubic Yard

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

**DETAILED SPECIFICATION
FOR
ITEM #212 - SUBGRADE UNDERCUTTING - TYPE II**

DESCRIPTION

This work includes removal of unsuitable granular base, subbase or clay material(s) to depths as specified by the Engineer.

CONSTRUCTION METHOD

After the pavement has been removed, and/or after rough/finish grading, and/or at the time of proofrolling, the Engineer may inspect the grade to determine the need for, and the limits of, undercuts. After undercut areas are excavated to the depths as directed by the Engineer, the areas shall be trimmed, shaped, evenly graded and recompacted to not less than 95% of the soils maximum unit weight as determined by the AASHTO T-180 test. The Contractor shall properly dispose of all excess materials.

Subgrade Undercutting - Type II shall be backfilled with 21AA Limestone, Class II Sand, or other material(s), as directed by the Engineer. The backfill material shall be compacted to not less than 98% of its maximum unit weight as determined by the AASHTO T-180 test. The fill material(s) for Subgrade Undercutting Type II shall be paid at the Contract unit price for the corresponding items of work as used which are (Class II Sand - C.I.P., and 21AA Limestone - C.I.P.).

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

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

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

MEASUREMENT AND PAYMENT

These items of work shall be measured for payment by calculating the volume of the undercut excavation prior to the placement of backfill.

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

PAY ITEM

PAY UNIT

Subgrade Undercutting - Type II

Cubic Yard

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

**DETAILED SPECIFICATION
FOR
ITEM #213 – TEMPORARY 4 INCH OR 6 INCH WATER MAIN LINE STOP**

DESCRIPTION

This work shall include all excavations, line stop contractor labor, materials, and backfill required to install a 4 inch or 6 inch line stop on an existing water main. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

CONSTRUCTION METHODS

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

MEASUREMENT AND PAYMENT

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

PAY ITEM

PAY UNIT

Temporary 4 inch or 6 inch Water Main Line Stop

Each

**DETAILED SPECIFICATION
FOR
ITEM #214 – STORM WATER TREATMENT DEVICE -72” DIA.**

DESCRIPTION

This work shall consist of installing storm water hydrodynamic separator units utilizing swirl concentrator and flow control technologies (vortex separation) for the removal of storm water pollutants in a flow through design method. The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Plans and these specifications.

No filters, bags or disposable/moving parts will be allowed as part of the filtration unit. Maintenance requirements for the units should be restricted to quarterly (seasonal) inspection and maintenance. Cleaning requirements should be such that they may be performed by vacuum truck or sump vac. These units shall be installed as shown on the plans or as configured according to reviewed and approved shop drawings submitted by the Contractor.

A. Removal Efficiencies

1. The SWTD shall be capable of achieving an 80 percent average annual reduction in the total suspended solid load.
2. The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this subsection under all flow conditions.
3. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff (20 ± 5 mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.
4. The SWTD shall be capable of utilizing sorbent media to enhance removal and retention of petroleum based pollutants.

B. Hydraulic Capacity

1. The SWTD shall provide a rated-treatment capacity, which is consistent with governing water treatment regulations. At its rated-treatment capacity, the device shall be capable of achieving greater than 65 percent removal of particles typically found in roadside sediments. This removal efficiency shall be supported by independent third-party research utilizing samples consistent with the NURP gradation or finer.
2. The SWTD shall maintain the peak conveyance capacity of the drainage network as defined by the Engineer.

C. Storage Capacity

1. The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 20 inches in diameter.
2. The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills. The minimum storage capacity provided by the SWTD shall be in accordance with the volume listed in Table 1 below:

TABLE 1

CDS Model	Treatment Capacity (cfs)/(L/s)	Minimum Sump Storage Capacity (yd ³)/(m ³)	Minimum Oil Storage Capacity (gal)/(L)
CDS2015-G	0.7 (19.8)	0.5 (0.4)	70 (265)
CDS2015-4	0.7 (19.8)	0.5 (1.4)	70 (265)
CDS2015	0.7(19.8)	1.3 (1.0)	92 (348)
CDS2020	1.1 (31.2)	1.3 (1.0)	131 (496)
CDS2025	1.6 (45.3)	1.3 (1.0)	143 (541)
CDS3020	2.0 (56.6)	2.1 (1.6)	146 (552)
CDS3030	3.0 (85.0)	2.1 (1.6)	205 (776)
CDS3035	3.8 (106.2)	2.1 (1.6)	234 (885)
CDS4030	4.5 (127.4)	5.6 (4.3)	407 (1540)
CDS4040	6.0 (169.9)	5.6 (4.3)	492 (1862)
CDS4045	7.5 (212.4)	5.6 (4.3)	534 (2012)
CDS2020-D	1.1 (31.2)	1.3 (1.0)	131 (495)
CDS3020-D	2.0 (56.6)	2.1 (1.6)	146 (552)
CDS3030-D	3.0 (85.0)	2.1 (1.6)	205 (776)
CDS3035-D	3.8 (106.2)	2.1 (1.6)	234 (885)
CDS4030-D	4.5 (127.4)	4.3 (3.3)	328 (1241)
CDS4040-D	6.0 (169.9)	4.3 (3.3)	396 (1499)
CDS4045-D	7.5 (212.4)	4.3 (3.3)	430 (1627)
CDS5640-D	9.0 (254.9)	5.6 (4.3)	490 (1854)
CDS5653-D	14.0 (396.5)	5.6 (4.3)	599 (2267)
CDS5668-D	19.0 (538.1)	5.6 (4.3)	733 (2774)
CDS5678-D	25.0 (708.0)	5.6 (4.3)	814 (3081)
CDS3030-DV	3.0 (85.0)	2.1 (1.6)	205 (776)
CDS5042-DV	9.0 (254.9)	1.9 (1.5)	294 (1112)
CDS5050-DV	11.0 (311.5)	1.9 (1.5)	367 (1389)
CDS7070-DV	26.0 (736.3)	3.3 (2.5)	914 (3459)
CDS10060-DV	30.0 (849.6)	5.0 (3.8)	792 (2997)
CDS10080-DV	50.0 (1416.0)	5.0 (3.8)	1057 (4000)
CDS100100-DV	64.0 (1812.5)	5.0 (3.8)	1320 (4996)

D. Alternate Treatment Technologies and Sizing Criteria

The sizing criteria for treatment systems must conform to the recommended loading rate and 3rd party testing data requirements as mentioned below:

1. CDS Screening Systems – designed for full treatment of the runoff rate at a loading rate not to exceed the critical flow in the inlet, in order to achieve 80% TSS removal efficiency. (80% TSS removal based on a average particles size of 63 micron)
2. Vortex separation systems – designed for full treatment of the runoff rate at a loading rate not to exceeding 24 gpm/ft², in order to achieve 80% TSS removal efficiency. The hydraulic capacity should not exceed a loading rate of 100 gpm/ft² to prevent scouring of previously captured particles. 80% TSS removal based on a average particles size of 63 micron)
3. Gravity systems – designed for full treatment of the runoff rate at a loading rate not to exceeding 10 gpm/ft², in

order to achieve 80% TSS removal efficiency. The gravity units will not exceed luminal flow condition parameters in the treatment unit but will provide a bypass system to prevent turbulence from accruing in the system. (See “Stokes Law” for gravity settling requirements of particles. 80% TSS removal based on a average particles size of 63 micron)

Additionally, the performance of the unit must be evaluated by a third party and verified in a program that allows a more-or-less direct comparison to other technologies. Performance should be third party verified, and removal efficiencies across the spectrum of particle sizes reported, at a range of hydraulic loading rates varying over a range of at least 25 to 125% of the manufacturer’s advertised ‘water treatment’ loading rate.

MATERIALS

The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a CDS® device manufactured by:

CONTECH Stormwater Solutions 9025 Centre Pointe Dr., Suite 400 West Chester, OH 45069 (866) 551-8325
(toll free)

A. Precast Concrete Components

Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

1. Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
2. The precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
3. Cement shall be Type III Portland Cement conforming to ASTM C 150;
4. Aggregates shall conform to ASTM C 33;
5. Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185 or A 497, respectively;
6. Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990 and
7. Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

B. Internal Components and Appurtenances

Internal Components and appurtenances shall conform to the following:

1. Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
2. Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
3. Fiberglass components shall conform to the National Bureau of Standards PS-15 and coated with an isophalic polyester gelcoat and
4. Access system(s) conform to the following:
 - a. Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.
 - b. Hatch systems shall be designed to withstand AASHTO H-20 loadings. Hatch systems not subject to direct traffic shall be manufactured of Grade 5086 aluminum. Hatch systems subject to direct traffic loads shall be manufactured of steel conforming to ASTM A 36-93a, supplied with a hot-dip galvanized finish conforming to ASTM A 123 and access doors bolted to the frame.

Submittals

The Contractor shall prepare and submit shop drawings in accordance with the contract documents. The shop drawings shall detail horizontal and vertical dimensioning, reinforcement and joint type and locations.

The Contractor shall submit four (4) sets of shop drawings sealed by a Professional Engineer in the State of Michigan certifying the above requirements to the City of Ann Arbor and showing details and an operation & maintenance plan for the storm water treatment units. The submittal should also include laboratory test results for the proposed units and references for local projects where the units have been installed. These documents must be reviewed and approved prior to the start of construction.

CONSTRUCTION METHODS

Handling and Storage

1. The Contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the Contractor.
2. The work shall be completed by a licensed Contractor approved by the City of Ann Arbor.
3. The SWTD shall be installed in accordance with the manufacturer’s recommendations and related sections of the contract documents. The manufacturer shall provide the Contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
4. The Contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The Contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner which leaves no sharp points or edges.

MEASUREMENT AND PAYMENT

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Storm Water Treatment Device – 72” Dia.	Each

The unit price includes all labor, equipment, materials, and documents necessary to install the Storm Water Treatment Units.

**DETAILED SPECIFICATION
FOR
ITEM #215 – GEOTEXTILE SEPARATOR**

DESCRIPTION

This item shall consist of placing a Non Woven Geotextile Fabric as a means of separating and stabilizing two dissimilar materials. The fabric shall provide a permeable layer, while retaining the soil matrix.

MATERIALS

Geotextiles shall be stored and handled in accordance with the manufacturer's recommendations. Torn or punctured geotextiles shall not be used unless repaired to the satisfaction of the Project Engineer. Approved material shall meet or exceed the following minimum average roll values:

Physical Property at 50% Elongation per ASTM-4632	Test Procedure	
Grab Strength, lbs	ASTM D-4632	200
Coefficient of Water Permeability, cm/sec	ASTM D-4491	0.1
Puncture Strength, lbs	ASTM D-4833	100
Trapezoid Tear Strength, lbs	ASTM D-4533	85
Apparent Opening Size (AOS) U.S. Standard Sieve	ASTM D-4751	70

CONSTRUCTION

The geotextile fabric shall be installed as directed by the Project Engineer. The material shall be joined by lapping. The amount of lap shall be as specified by the plans or 3 feet. Back dump granular material and spread in the direction of the overlap. Six-inch minimum cover will be required over all fabrics before construction traffic is allowed.

MEASUREMENT AND PAYMENT

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

PAY ITEM

PAY UNIT

Geotextile Separator

Square Yard

Payment for Geotextile Separator includes equipment, labor and materials to complete this item. The Geotextile Separator will be measured for payment by the square yard in place only when directed by the Engineer. Geotextile Fabric will not be measured and paid for separately when called out as included in other pay items.

**DETAILED SPECIFICATION
FOR
ITEM #220 - HMA PAVEMENT BASE – 3E-1
ITEM #221 - HMA PAVEMENT LEVELING - 4E-1
ITEM #222 - HMA PAVEMENT WEARING – 5E-3**

DESCRIPTION

This work shall consist of constructing HMA pavement base, leveling, and surface courses in accordance with Division 5 and Section 806 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT

General

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

<u>WORK ITEM</u>	<u>MDOT HMA MIXTURE #</u>
HMA Pavement Wearing	5E-3 (Superpave)
HMA Pavement Leveling	4E-1 (Superpave)
HMA Pavement Base	3E-1 (Superpave)

Binders for Superpave mixes shall be PG 58-22 for base and leveling courses, and PG 70-28(p) for the wearing course, as directed by the Engineer, and shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

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

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

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

The use of Reclaimed Asphalt Pavement (RAP) in HMA mixtures shall be in accordance with Section 501.02.A.2 of the 2012 edition of the MDOT Standard Specifications, and the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHODS

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

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

Prior to placing the bond coat, the Contractor shall kill all vegetation (within the area to be paved) by applying an approved weed killer ("Round-Up" by Monsanto, or equal), shall thoroughly clean all joints & cracks in the existing pavement (and any gutter to be overlaid) with compressed air and/or vacuum-type street cleaning equipment to remove all dirt and debris to a depth of at least 1-inch, and shall thoroughly clean the entire surface to be paved, with a Vac-All

or similar vacuum-type street cleaning equipment.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.05 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care to avoid covering surfaces which are not to be paved. After September 15, SS-1h bond coat shall not be diluted by more than 25%.

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

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

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

HMA wearing and leveling courses shall be placed in lifts of 2-inches or less; base courses shall be placed in lifts of 3-inches or less.

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

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

The Contractor shall construct feather joints, and shall feather the leveling and wearing courses at structures, in drive approaches, and at intersection joints, as directed by the Engineer. Feather joints shall vary the thickness of the asphalt from 0.0-inches to the required full paving thickness (approximately 1½-inches) over a 5-foot to 15-foot distance, or as directed by the Engineer. The Contractor shall rake all large aggregates out of the HMA mixture in feather joints, prior to compaction.

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

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

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

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

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

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the

engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

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

MEASUREMENT AND PAYMENT

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

Corrective action shall be enforced as described at Division 5 of the 2012 MDOT Standard Specifications and will be based on the City's testing reports.

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

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

PAY ITEM

PAY UNIT

All HMA Pavement Items

Ton

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

**DETAILED SPECIFICATION
FOR
ITEM #223 – TEMPORARY HMA PAVMENT**

DESCRIPTION

This work shall consist of patching existing HMA and concrete pavements as specified in Division 5 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS

The HMA mixtures to be used for this work shall be MDOT No. 11A, 36A, 13A, 2C, 3C, or 4C, as directed by the Engineer.

Asphalt Binders shall be grade PG 52-28, PG 58-22, PG 58-28, or PG 64-22, as directed by the Engineer, and shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

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

CONSTRUCTION METHODS

All areas excavated on any given day shall be patched, compacted and opened to traffic, that same day.

The Contractor shall provide a 10-foot long straight-edge during all paving operations.

The aggregate base and/or subgrade of all patch areas which are, or become, damp or wet, shall be dried by aerating, or by other methods approved by the Engineer.

The aggregate base and/or subgrade of each patch shall be evenly graded and trimmed, and shall be compacted by the use of a vibratory plate compactor or other approved method(s) to not less than 98% of its maximum unit weight.

Prior to placing HMA patching material, all patch areas shall be cleaned with compressed air, and/or vacuum type street cleaning equipment (Vac-all), to remove dirt and loose material. Compressed air shall be from a source which provides a minimum of 90 psi and 150 cubic feet per minute of air at the nozzle.

All asphalt and concrete surfaces within all patch areas shall be covered with MDOT SS-1h bond coat, applied at a rate of 0.05 gallons/square yard. The bond coat shall be applied with a power distributor hand sprayer.

The Contractor shall use an asphalt paver or spreader box to place HMA mixtures. The Contractor shall not use a grader, front-end loader or any similar device to place HMA mixtures. For small areas, where approved by the Engineer, the Contractor may place the material by hand directly into patch areas. The Contractor shall not place HMA materials on adjacent pavement surfaces.

HMA mixtures shall be placed in lifts not exceeding 3-inches (approximately 3½-inch loose). Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

HMA mixtures shall be compacted by the use of an approved vibratory roller. At small patches, an approved vibratory plate compactor shall be used.

Spot Wedging, Spot Leveling, and Finish Patching shall be performed in accordance with this Detailed Specification and as directed by the Engineer, using the HMA mixture(s) directed by the Engineer.

The completed work of patching, spot wedging, spot leveling and finished patching shall provide a smooth riding surface, to the satisfaction of the Engineer.

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

MEASUREMENT AND PAYMENT

Measurement shall be by the ton, in place. Unused HMA material shall be returned to the plant and re-weighed, and a corrected weight slip shall be provided to the Engineer. Weight slips shall include the type of mixtures (codes are not acceptable), as well as the truck number, gross weight, tare weight and net weight.

Price adjustments shall be enforced as described at Section 4.00.19 MDOT Standard Specifications (1990 edition), and will be based on testing reports provided by the City's testing representatives.

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

PAY ITEM

PAY UNIT

Temporary HMA Pavement

Ton

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

**DETAILED SPECIFICATION FOR:
ITEM #230 - REMOVE CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #231 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS**

DESCRIPTION

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

CONSTRUCTION METHOD

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

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

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

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

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

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

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

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

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

Where existing concrete curb & gutter is to be replaced on a street with a concrete (or brick) base, the Engineer may direct the Contractor to remove a 1-to-2-foot wide, full-depth section of pavement and pavement base from immediately in front of the curb & gutter. As part of this pavement/base removal, the Contractor shall perform additional (double) full-depth saw-cutting along the entire removal limits, and shall take sufficient care so as not to

damage and/or disturb any adjacent pavement, pavement base, and/or any other site feature, all as directed by the Engineer. The removals shall be to a sufficient width and depth to allow for the placement and removal of the curb & gutter formwork. After the removal of the formwork, the Contractor shall replace the concrete base to its original thickness and elevation(s).

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

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

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

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 2.5 inches of topsoil, followed by the placement of grass seed, followed by the placement of 0.5 inches of topsoil at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. All restoration work and materials shall be in accordance with the City Standard Specifications. Restoration work must be performed within one week of the placement of the wearing course for each street.

MEASUREMENT AND PAYMENT

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

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

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

Restoration work, including backfilling, compacting, HMA patching adjacent to concrete items, topsoiling and seeding will not be paid for separately, but shall be included in the appropriate associated items of work.

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

PAY ITEM

PAY UNIT

Remove Concrete Curb or Curb & Gutter - Any Type

Lineal Foot

Remove Concrete Sidewalk & Driveways - Any Thickness

Square Foot

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

**DETAILED SPECIFICATION
FOR**

ITEM #232	CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #233	CONCRETE M-OPENING - HIGH-EARLY
ITEM #234	4-INCH CONCRETE SIDEWALK OR RAMP
ITEM #235	6-INCH CONCRETE SIDEWALK, RAMP OR DRIVE
ITEM #236	6-INCH CONCRETE SIDEWALK, RAMP OR DRIVE - HIGH-EARLY
ITEM #237	8-INCH CONCRETE SIDEWALK, RAMP OR DRIVE - HIGH-EARLY

DESCRIPTION

This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, drive approaches, MDOT Type M drive openings, and pavement repairs with mechanical anchors and hook bolts, all of any type and/or dimensions, all of either regular, fibermesh reinforced, and/or high-early concrete, in accordance with Sections 601, 602, 603, 801, 802, and 803 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

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

MATERIALS

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

<u>Concrete Item</u>	<u>Concrete Mixture</u>	<u>MDOT Section</u>
Curb or Curb & Gutter	P1, 6-sack	601
Curb or Curb & Gutter - High-Early	HE, 8.4-sack	601
4" or 6" Sidewalk or Ramp	P1, 6-sack	601
6" or 8" Sidewalk/Ramp/Drive - High-Early	HE, 8.4-sack	601

CONSTRUCTION METHODS

General

Curb, gutter, curb and gutter, sidewalk, sidewalk ramps, drive openings, and drives shall be replaced the same day they are removed.

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

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

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

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

At locations where the subgrade, subbase or base becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subgrade, subbase or base, and replace it with approved 21AA Aggregate material, compacted in place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

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

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

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

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

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

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

Where concrete items are placed adjacent to existing pavement that is within areas scheduled for subsequent pavement removal and/or milling, the adjacent pavement area shall, within 48-hours of the removal of concrete formwork, be backfilled with MDOT 21AA aggregate compacted in place to 95% up to the elevation of the bottom of the adjacent pavement.

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

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

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement and compaction of 2.5 inches of topsoil, followed by the placement of grass seed, followed by the placement of 0.5 inches of topsoil, at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. **Restoration shall also include the replacement of any brickwork, decorative stone, or other adjacent materials.** All restoration work and materials shall be in accordance with the City Standard Specifications.

Contraction Joints in Sidewalk

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

Expansion Joints in Sidewalks

$\frac{3}{4}$ -inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

$\frac{1}{2}$ -inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

Expansion Joints in Curb and Gutter

$\frac{3}{4}$ -inch wide expansion joints shall be placed at all street returns, at all expansion joints in an abutting pavement, at each side of all driveways (at radius points), elsewhere at 300-foot maximum intervals, and as directed by the Engineer.

Expansion joint material shall extend to the full depth of the joint. After installation, the top shall not be above the concrete nor be more than $\frac{1}{2}$ -inch below it. No reinforcing steel shall extend through expansion joints.

Plane of Weakness Joints in Curb and Gutter

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

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

Concrete Pavement Repair - High Early

Prior to the placement of concrete, the Contractor shall install mechanical anchors and $\frac{5}{8}$ -inch diameter hook bolts into adjacent (new or old) concrete items as required by the MDOT Standard Specifications and Details, as indicated on the Plans, and as directed by the Engineer. The Engineer may delete the installation of mechanical anchors and hook bolts where, in the Engineer's opinion, the adjacent concrete item(s) is/are observed to be of poor quality. The installation of mechanical anchors & hook bolts will be paid for separately, and are not included in the bid price for "Concrete Pavement Repair – High Early."

During the placement of "Concrete Pavement Repair - High-Early", the Contractor shall use a high-frequency mechanical vibrator to compact and consolidate the concrete to provide even, homogeneous placement, and to prevent voids, honeycombing, and/or pockets of air from forming within the concrete.

MEASUREMENT AND PAYMENT

The work of furnishing and installing mechanical anchors and hook bolts will be measured and paid for by the number of hook bolts installed.

All concrete pavement repair, including that which is installed with integral curb and gutter, will be measured and paid for by the area actually placed in square yards (S.Y.).

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

No additional compensation will be paid for the removal of a 6-inch thick layer of the subgrade, subbase or base, and replacement with approved 21AA aggregate material, compacted in place.

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

Curb, gutter, curb and gutter, and MDOT type M openings, shall be paid as "Curb & Gutter."

On streets where curb and gutter is to be placed with the item “Concrete Curb & Gutter – Any Type – Slip Form”, all miscellaneous hand work associated with the slip form placement shall be included in this item of work and shall not be paid for separately.

Restoration work, including backfilling, compacting, HMA patching adjacent to concrete items, topsoiling and seeding will not be paid for separately, but shall be included in the appropriate associated items of work.

Payment for saw cutting for Type M openings and for partial removal of existing drives shall be included in the price for the item of work, “Remove Concrete Sidewalk & Driveways - Any Thickness”, and will not be paid for separately.

Payment for the removal of HMA pavement and aggregate base to provide space for concrete formwork and vibratory plate compactor shall be included in the price for the item of work, “Remove Concrete Curb and Gutter - Any Type”, and will not be paid for separately.

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

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

PAY ITEMS

PAY UNIT

Concrete Curb or Curb & Gutter - ALL TYPES	Lineal Foot
4 - 6-8 Inch Concrete Sidewalk, Ramp, or Drive	Square Foot
6-Inch Concrete Sidewalk, Ramp, or Drive - High Early	Square Foot
8-Inch Concrete Sidewalk, Ramp, or Drive - High Early	Square Foot

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

**DETAILED SPECIFICATION
FOR
ITEM #238 – SIDEWALK RETAINING WALL (6" - 18" Height Above S/W Surface)**

DESCRIPTION

This work shall consist of constructing concrete retaining walls adjacent to sidewalks, in accordance with Sections 802 and 803 of the 2011 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown in this Detailed Specification, and as directed by the Engineer.

MATERIALS

Concrete mixtures shall be High Early, 8.4-sack concrete (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the appropriate sections of the MDOT Standard Specifications.

CONSTRUCTION METHODS

General

The Contractor shall construct the Item "Sidewalk Retaining Wall (6" or less)" in accordance with MDOT standard plan R-30-E, detail E2. Curb face exposure shall be 6 inches or less.

The Contractor shall construct the Item "Sidewalk Retaining Wall (6" - 18" Height Above S/W Surface)" as shown on the Details provided on the plans.

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

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact any materials needed to perform the work.

At locations where the subgrade, subbase or base becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subgrade, subbase or base, and replace it with approved 21AA Aggregate material, compacted in place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots 2 inches in diameter or greater.

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

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

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

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement of any fill necessary to match the grade of the retaining wall, placement and compaction of 3 inches of topsoil, placement of grass seed, followed by the placement of 0.5 inches of topsoil, at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. **Restoration shall also include the replacement of any miscellaneous brickwork, decorative stone, or other adjacent materials.**

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

MEASUREMENT AND PAYMENT

Payment shall be measured along the exposed face area of the retaining wall in linear feet. The sidewalk section will be paid for separately under the appropriate item. If grade separations are less than 6" in vertical height, construction of a concrete barrier shall be paid for as the appropriate Concrete Curb & Gutter item.

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

PAY ITEMS

PAY UNIT

Sidewalk Retaining Wall (6" - 18" Height Above S/W Surface)

LF

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

**DETAILED SPECIFICATION
FOR
ITEM #240 –DETECTABLE WARNING, CAST IN PLACE**

DESCRIPTION

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

MATERIALS AND CONSTRUCTION METHODS

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

1. Dimensions: Cast In Place Detectable/tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:

Length: 24"
Width: The full width of the approaching walk (60" for typical sidewalk)
Depth: 1.375 (1-3/8") (+/-) 5% max.
Face Thickness: 0.1875 (3/16") (+/-) 5% max. Warpage of Edge: 0.5% max.
Embedment Flange Spacing: shall be no greater than 3.1"
2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficients of Friction not to be less than 0.80 on top of domes and field area.
4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10" travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be 3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
10. Fire Resistance of Tile when tested to ASTM E 84-05 flame spread shall be less than 15.
11. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. Ibf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.
12. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result - □E <4.5, as well as no deterioration, fading or chalking of surface.
13. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
14. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.

15. AASHTO HB-17 single wheel HS20-44 loading "Standard Specifications for Highways and Bridges". The Cast In Place Tile shall be mounted on a concrete platform with a ½" airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.
16. Embedment flange spacing shall be no greater than 3.1" center to center spacing as illustrated on the product Cast In Place drawing.

CONSTRUCTION METHODS

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28- F (version in place at time of the bid letting).

MEASUREMENT AND PAYMENT

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Detectable Warnings, Cast In Place	Square Foot

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

**DETAILED SPECIFICATION
FOR
ITEM #241 – ADJUST STRUCTURE COVER
ITEM #242 – ADJUST CURB INLET STRUCTURE COVER
ITEM #243 – ADJUST MONUMENT BOX OR GATE VALVE BOX OR GAS BOX
ITEM #244 – STRUCTURE COVER**

DESCRIPTION

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

MATERIALS

Materials shall meet the requirements of sections 403 and 601 of the 2012 edition of the MDOT Standard Specifications, except that concrete shall be MDOT HE, 8.4-sack per Section 601 of the 2012 MDOT Standard Specifications.

CONSTRUCTION METHODS

General

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

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

Adjust Structure Cover

This item includes the final adjustment of castings of any type (including drop inlets) to their respective finished elevations, up or down a maximum of 15-inches.

Covers shall be adjusted after the leveling, skin leveling and/or patching course has been placed, unless otherwise authorized or directed by the Engineer.

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

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

All structure covers, utility covers, valve boxes or monument boxes shall be backfilled with MDOT HE, 8.4-sack

concrete from the depth of excavation necessary for adjustment, up to an elevation 2-inches below the top flange of the adjusted casting. This work shall be included in the respective items of work, and will not be paid for separately.

Adjust Monument Box or Gate Valve Box or Gas Box

This item includes the final adjustment of existing or new covers/castings up or down a maximum of 15-inches and to their finished elevations. This also includes the replacement of the top half of the water valve boxes, monument boxes (furnished by the City) and gas boxes where required, and shall be included in this item of work.

Structure Covers

This item shall consist of replacing covers and/or castings for structures, gate wells and inlet structures as shown on the Plans and as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified, as follows:

<u>Type of Casting</u>	<u>MDOT Designation</u>	<u>NEENAH No. (Weight, Lbs)</u>	<u>EJIW No. (Weight, Lbs)</u>
Manhole Flange and Cover	B	R-1642 w/ Type C cover Type D cover (380 lbs.)	1040 w/ Type C cover Type M1 (300 lbs.)
Curb Inlet or Catch Basin	K	R-3249F (410 lbs.)	7045 (500 lbs.)

Frames and covers shall have machined bearing surfaces. Covers shall have two, 1-inch vent holes located opposite each other and 6-inches from the edge. Each cover shall have "SEWER" or "W" cast in the surface, whichever is applicable.

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

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

MEASUREMENT AND PAYMENT

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

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

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

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Adjust Structure Cover	Each
Adjust Curb Inlet Structure Cover	Each
Adjust Monument Box or Gate Valve Box or Gas Box	Each
Structure Cover	Lbs

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

**DETAILED SPECIFICATION
FOR
ITEM # 251 – FIRE HYDRANT ASSEMBLY ABANDONMENT**

DESCRIPTION

This work shall include abandoning and removing fire hydrant assemblies as required by the Plans. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

CONSTRUCTION METHODS

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.

In locations as shown on the Plans or where abandoned fire hydrants are within 2.5 feet of the proposed subgrade the resulting hole or trench shall be backfilled with Class II Sand, in maximum lifts of 12 inches, and be compacted to 95% of its modified proctor value, if located within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its modified proctor value, in lifts of 12 inches or less, unless otherwise noted on the plans.

Abandoned (salvaged) fire hydrant assemblies shall be delivered to the City of Ann Arbor Field Services Unit at the Wheeler Service Center located at 4251 Stone School Road. As directed by the Engineer and within two days of their removal, the Contractor shall either deliver the existing structure covers and valve boxes to the City's yard at 4251 Stone School Road or dispose of them at his/her sole expense.

MEASUREMENT AND PAYMENT

The unit price for the pay item "Fire Hydrant Assembly Abandonment," includes all labor, material and equipment costs associated with the complete removal of the existing fire hydrant assembly, as specified herein, including but not limited to, excavation MDOT CL II Backfill and compaction; pipe cutting; thrust block removal; pipe plug; thrust block; salvaging of fire hydrant, valve and valve box; and delivery of fire hydrant, valve and valve box to the City's yard, located at 4251 Stone School Road.

PAY ITEM

PAY UNIT

Fire Hydrant Assembly Abandonment

Each

**DETAILED SPECIFICATION
FOR
ITEM #252 - SEWER BULKHEAD, 4-INCH THROUGH 18-INCH DIAMETER**

DESCRIPTION AND MATERIALS

This work shall consist of constructing sewer bulkheads, as specified herein, as shown on the Plans, and as directed by the Engineer.

Materials shall meet the requirements of the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHODS

The Contractor shall install Sewer Bulkheads, as shown on the Plans, as detailed in the City Standard Specifications, and as directed by the Engineer.

The Contractor shall remove and properly dispose of all excavated materials, removed storm sewer and debris, and bulkhead or abandon existing pipe and structures, all as directed by the Engineer.

In areas where the road is to be reconstructed, the Contractor may elect to perform sewer work prior to the removal of pavement and subgrade preparation. In such cases, the work associated with pavement removal, excavation, backfill, and the temporary patching of the trench as necessary for traffic maintenance, will not be paid for separately, but shall be included in these items of work. The Contractor shall place and compact Class II sand backfill in the trench up to the elevation where the prepared base or subbase is to begin, or as directed by the Engineer.

MEASUREMENT AND PAYMENT

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

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

PAY ITEM

PAY UNIT

Sewer Bulkhead, 4-Inch Through 18-Inch Diameter

Each

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

**DETAILED SPECIFICATION
FOR
ITEM #254 - 6-INCH WRAPPED UNDERDRAIN**

DESCRIPTION

This work shall consist of furnishing and installing 6-inch diameter geotextile-wrapped, perforated or slotted underdrain pipe, using MDOT 2NS and MDOT 21AA, as directed by the Engineer, for all backfill material.

MATERIALS

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

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

CONSTRUCTION METHODS

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

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

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT 2NS fine aggregate, Class II granular, and 21AA coarse aggregate materials as needed to construct underdrain as specified on the Plans, and as directed by the Engineer.

HMA pavement shall be cut full-depth, vertically straight, and horizontally straight, to the specified width by means of saw, jackhammer or other cutting method(s) approved by the Engineer. The use of backhoe mounted wheel-type pavement cutters may not be used on this project.

The trench shall be constructed to have a minimum width of 18-inches, and shall be typically excavated to a depth of between 36 and 54 inches, or to the depth specified in the Plans or directed by the Engineer.

The underdrain shall be installed at the line, grade, and depth specified on the Plans or as directed by the Engineer. The minimum percent grade shall be 0.5%, and the minimum cover from top-of-pipe to finished top-of-pavement grade shall be 2-feet. The Contractor shall maintain line and grade by means of a laser. The Engineer will not provide line, grade or staking.

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

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

During the construction of underdrain runs, the Engineer may direct the Contractor to terminate or modify underdrain construction due to conflicts with buried obstructions or if the minimum 2-foot cover cannot be maintained. There will be no adjustment to the Contract Unit Price due to changes in quantity.

The first lift (bedding) of backfill shall be MDOT 2NS material to a maximum thickness of 3-inches. Subsequent lifts shall be MDOT 2NS material to a maximum thickness of 12 inches. The final lift of backfill shall consist of a layer of MDOT 21AA crushed limestone, and shall extend a minimum of 8 inches below the bottom of the adjacent pavement elevation.

When compacted, the top of this final lift shall be at the same elevation as the adjacent pavement. All materials shall be compacted as specified in the City Standard Specifications.

The Contractor shall place MDOT HMA mixtures (as specified elsewhere herein), in the locations and to the elevations as directed by the Engineer. HMA pavement shall be placed with a maximum lift thickness of 2 inches, and each lift shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula. The Contractor shall be paid for the HMA patching materials separately, at the Contract Unit Price for Contract Pay Item, "HMA Patching."

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

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

MEASUREMENT AND PAYMENT

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

Pavement removal to construct underdrain will not be paid for separately, but shall be included in the bid price for this item of work. Backfilling of the excavation to the top of the adjacent pavement will not be paid for separately, but shall be included in the bid price for this item of work.

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

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

PAY ITEM

PAY UNIT

6-Inch Wrapped Underdrain

Lineal Foot

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

**DETAILED SPECIFICATION
FOR
ITEM #255 - 4" or 6" LEAD REMOVE AND REPLACE IN TRENCH**

DESCRIPTION

This work shall consist of removing and replacing existing lead in new utility trenches. Work includes cutting lead, carefully removing, replacing with SDR 35 PVC pipe and fittings along with fernco connections. All materials need to accomplish this work is included in this pay item. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

CONSTRUCTION METHODS

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.

Sewer leads are private and no official City records are kept. Leads have been located and placed on plans per video inspection of sewer. Contractor to carefully excavate leads, not dig through lead but to saw cut out of way. Lead to be kept clean, have positive fall, and replaced as soon as possible. Contractor to coordinate with homeowner as needed to complete work. Trench must be carefully backfilled to prevent damage. Prior to placement of HMA contractor will have entire lead televised. Any defects in repair contractor will excavate and make repair at contractors expense.

MEASUREMENT AND PAYMENT

The unit price for the pay item "4" or 6" Lead Remove and Replace in Trench " includes all labor, material and equipment costs associated with the complete installation of the sewer lead, as specified herein, including but not limited to, excavation MDOT CL II backfill, compaction.

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

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

PAY ITEM

PAY UNIT

4" or 6" Lead Remove and Replace in Trench

Each

**DETAILED SPECIFICATION
FOR
ITEM #260 - SAND SUBBASE COURSE, CLASS II - C.I.P.
ITEM #261 - 21AA LIMESTONE - C.I.P.
ITEM #262 - AGGREGATE BASE COURSE, 21AA - C.I.P.**

DESCRIPTION

This work shall consist of constructing an aggregate subbase or base course on an existing aggregate surface, or on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL

The materials used for this work shall be MDOT 21AA and Class II granular material meeting the requirements of the City of Ann Arbor Standard Specifications. Material for aggregate shoulders shall be MDOT 22A.

CONSTRUCTION METHOD

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

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

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

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

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

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

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

Sand and aggregate courses shall be placed in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer. The loose measure of any layer shall not be more than 9-inches nor less than 4-inches.

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

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

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

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

MEASUREMENT AND PAYMENT

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

Where granular materials are used as fill for undercuts at locations other than Machine Grading areas, item of work "21AA Limestone - C.I.P." shall be measured and paid accordingly.

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

PAY ITEM

PAY UNIT

Sand Subbase Course Class II - C.I.P.
21AA Limestone - C.I.P.
Aggregate Base Course 21AA - C.I.P.

Cubic Yard
Cubic Yard
Cubic Yard

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

**DETAILED SPECIFICATION
FOR**

ITEM #270 – NO PARKING SIGN

ITEM #271 – SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE

ITEM #272 – PLASTIC DRUM - LIGHTED – FURNISH & OPERATE

ITEM #273 – BARRICADE TYPE III - LIGHTED - FURNISH AND OPERATE

ITEM #274 – TEMPORARY SIGN - TYPE B

DESCRIPTION

This work shall consist of protecting and maintaining vehicular and pedestrian traffic, in accordance with Sections 103.05, 103.06, and 812, of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

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

The Contractor shall maintain two-way traffic on major streets, access for local traffic on local streets, and keep all intersections open to traffic at all times, unless 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. Patch areas which extend more than halfway across the roadway shall be removed and replaced so as to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall keep all driveways open at all times, unless specifically authorized in writing by the Engineer.

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

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

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

A lane-closure permit shall be obtained by the Contractor from the City Transportation Division, at least 48 hours in advance of any proposed lane or street closing.

The hours of work on all Local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the lane-closure permit. No equipment will be allowed in the street before or after these hours. Local streets may only be closed to through traffic (local access only) with written authorization of the Engineer. Work must be completed each day such that all streets are re-opened to through traffic by 8:00 p.m. unless otherwise specified, directed, or authorized in writing by the Engineer. All major changes in traffic control shall be made either between 9:30 a.m. and 3:30 p.m., or between 7:00 p.m. and 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 temporarily cover conflicting traffic and/or parking signs when directed by the Engineer.

Parking violation citations issued to the Contractor, subcontractor and material suppliers, including their employees, shall be enforced under appropriate City Code.

The Contractor shall replace missing or damaged traffic control devices, as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

Lighted Plastic Drums; III Barricades; Type B Temporary Signs

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

Type III Barricades shall have standard orange-and-white stripes on both sides of the barricade.

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

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

No-Parking Signs and Posts

Prior to the commencement of any construction activity, the Contractor shall place No-Parking signs as directed by the Engineer. The Contractor shall obtain a permit for "Temporary Permission of Reserve Parking Lane for Work Related Purposes" from the City of Ann Arbor Project Management Services Unit. This permit shall be obtained a minimum of 5 days prior to the posting of No-Parking signs.

The City will furnish No-Parking signs to the Contractor at no cost. The Contractor shall furnish the signposts and shall securely bolt the signs to the signposts as directed by the Engineer. The Contractor shall install the signposts at least 2-feet deep into the ground, and there shall be a minimum 6-foot and maximum 7-foot clearance maintained between the bottom of the sign and the ground. The signs shall be placed at 75-foot intervals (or as necessary) to eliminate parking in the construction area.

The installation of No-Parking signs shall be in accordance with the permit. No-Parking signs shall be installed by the Contractor, as directed by the Engineer, **at least 48 hours prior to the proposed start-of-work/enforcement date.**

No-Parking signs shall be returned to the City at the completion of the work. The cost of unreturned signs will be back charged to the Contractor.

No-Parking signs shall be covered by the Contractor, thereby allowing on-street parking, until between 48 and 36 hours prior to the start of the work. No-Parking signs shall be covered by the Contractor whenever there is no work being performed for a period of time longer than 72 hours.

MEASUREMENT AND PAYMENT

General

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

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

Barricade Type III - Lighted - Furnish and Operate

Payment for furnishing and operating lighted Type III barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

Temporary Sign - Type B

Payment for Type B signs shall be for the maximum quantity used on each street.

Plastic Drum - Lighted – Furnish and Operate

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

No-Parking Signs

No-Parking Signs will be measured as the maximum number installed on each street at any one time. The unit price includes the removal and return of No-Parking signs to the City upon completion of the project. The Contractor shall be backcharged for the replacement costs for damaged or unreturned signs.

Portable Changeable Message Signs

Measurement for furnishing and operating Portable Changeable Message Signs will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

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

PAY ITEM

Plastic Drum - Lighted - Furnish& Operate
Barricade Type III - Lighted - Furnish and Operate
Temporary Sign, Type B
No-Parking Sign
Sign, Portable Changeable Message, Furnish and Operate

PAY UNIT

Each
Each
Square Foot
Each
Each

**SPECIAL PROVISION
FOR
ITEM # 280 - RAIN GARDEN WEIR WALL, CONC**

DESCRIPTION

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

This work shall consist of installing concrete weir walls and footings according to this special provision and as shown on the plans.

MATERIALS

Concrete shall consist Grade P1 conforming to Section 601 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction. Calcium chloride shall not be added.

CONSTRUCTION

Construct weir walls and footings according to the details on the plans and Section 802 of the MDOT 2012 Standard Specifications for Construction. Steel reinforcement shall comply with Section 905 of the MDOT 2012 Standard Specifications for Construction. Weir walls may be either cast in place or precast. If precast units are use, the walls must be precast to the lengths and dimensions specified on the plans, and shall not be cut from larger segments.

MEASUREMENT AND PAYMENT

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

PAY ITEM

PAY UNIT

Rain Garden Weir Wall, Conc..... Each

Rain Garden Weir Wall, Conc will be measured in place by the unit Each and paid for at the contract unit price per Each, which price shall be payment in full for all labor, materials and equipment needed to accomplish this work.

**SPECIAL PROVISION
FOR
ITEM # 281 - RIPRAP, MODIFIED**

DESCRIPTION

Provide all labor and materials for exterior stone work for raingarden and bioretention areas where shown on the drawings as specified herein, as needed for complete and proper installation. Complete this work according to the Section 813, 910 & 916 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction except as described herein. Extent of work shall include but not be limited to:

- Forebays
- Stone Weirs
- Plunge Pools
- Armored Outlets

MATERIALS

STONE

Stone for Forebay, Plunge Pool, Stone Weir and Armoured Outlet to be MDOT Plain Rip Rap. Stone will be Natural Stone, rounded Michigan glacial erratics. Concrete will not be accepted. Stone shall be of the size and characteristics specified on the drawings. Bedding Stone shall be MDOT 21AA, compact to min. 95% of modified proctor test.

GEOTEXTILE FABRIC

- A. Geotextile Fabric shall meet the MDOT (Table 910-1) requirements for Geotextile Liner or Heavy Geotextile Liner for Plain Rip Rap or Heavy Rip Rap, respectively.

SUBMITTALS

- A. CONTRACTOR to provide manufactures product data, certifying that each material item complies with (or exceeds) specified requirements.
- B. The CONTRACTOR shall provide full scale samples of each stone type indicated, representative of all variations to be expected in the finished installation.

CONSTRUCTION

DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials in a manner to prevent damage and deterioration to materials or existing site improvements.

EXCAVATION, SUBGRADE, AND BACKFILL

- A. Strip vegetation and organic soil from retaining wall footprint to expose suitable inorganic subgrade.
- B. Do not excavate beyond excavation boundary shown as silt fence on plan unless directed by site soils engineer to remove unsuitable soil.
- C. Contractor shall ensure temporary excavations are stable and provide excavation support if needed.
- D. Soil behind the retaining wall shall be compacted to a minimum of 95% of maximum standard proctor density or as required per the individual weir sections.
- E. Compaction within 3 feet of the retaining wall shall be limited to hand operated equipment. Contractor shall slope site grades to direct surface runoff away from retaining wall at end of each day to avoid water damage to the weir while under construction.
- F. Temporary erosion control measures, including erosion control blanket and temporary seeding shall be

installed immediately after wall is completed.

PLACEMENT

Riprap shall be constructed as shown on the plans – this may require hand work when placing stone.

GEOTEXTILE BLANKET

Installation shall conform to MDOT section 813.03.E. Riprap 2012 Standard Specifications for Construction and shown on the drawings.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Riprap, Plain, Modified	CY

The unit price includes all labor, equipment, materials, and documents necessary to install the Forebays, Stone Weirs, Plunge Pools, and Armored Outlets for rain garden and bioretention areas as detailed in the plans.

**SPECIAL PROVISION
FOR
Item # 282 – 286 PLANTING ITEMS & MULCH**

DESCRIPTION

This work shall consist of planting trees and native plugs at the locations shown on the plans, as directed by the Engineer, according to section 815, 816 and 917 of the 2012 Michigan Department of Transportation Standard Specifications, and as modified herein. Work also includes providing and placing tree drip bags and shredded bark mulch around tree plantings and providing shredded hardwood mulch where indicated on the plans.

MATERIALS

NATIVE PLUGS

- A. Plugs shall be of native plant material of genotypes from the north central states only (MI, IL, IN, IA, OH), and from a recognized nursery of this region. Michigan sources for plugs shall be located before reaching out to other north central states.
- B. Species of native plant material must be the straight species, not a cultivar, unless approved by the Engineer, or specified as a cultivar in the plant lists.
- C. Plugs shall be installed in the proportion and pattern as indicated on the drawings.

ALL PLANTINGS

- A. Material shall be of the size, genus, species, variety, cultivar and any other special designation as shown on the drawings. No substitution of species, cultivar, variety or size shall be accepted without written approval from the Engineer. Plant material shall be nursery grown, under climatic conditions similar to those in the locality of the project.
- B. Quality: Plants shall comply with the recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Plants shall be healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sunscald, injuries, abrasions, or disfigurement.
- C. Balled and burlapped trees shall be dug with solid balls of standard size, the balls securely wrapped with non-synthetic, untreated, biodegradable burlap, and tightly bound with non-synthetic, biodegradable rope or twine. Alternatively they may be placed in wire basket lined with non-synthetic, untreated, biodegradable burlap and tightly bound with non-synthetic, biodegradable rope or twine. Plants balled with plastic burlap will not be accepted.

TREE DRIP IRRIGATION BAGS shall be 20 gallon, slow release watering bags.

MULCH shall be shredded hardwood mulch. Bark mulch, or colored or dyed mulch will not be accepted. For trees, mulch will be placed on the soil surface over the rootball of the tree, but not directly adjacent. Mulch should not touch tree trunk. The mulch depth is to be no less than 3" and no more than 4 inches. For all native plug planting areas shredded hardwood mulch is to be spread at a depth indicated on the plans.

STAKES for plant locations shall be 1" X 2" X 3', and supplied by the CONTRACTOR.

TREE SUPPORT

- A. No trunk wrapping material shall remain on the tree after planting.
- B. Tree staking is not necessary unless the site is windy or the tree is greater than 3" in caliper. Any tree staking shall be approved by the ENGINEER.
 - 1. Staking and guying materials, if approved, shall be as follows: Stakes shall be 6' to 8' long sections of unflanged metal or 2" x 2" hardwood. Support ties shall be 2-3" wide bands of polypropylene, elasticized or webbed strapping. Do not use rope or wire encased in a hose. All staking materials must be removed after one (1) year unless discussed with and authorized by the City.

SUBMITTALS

- A. The CONTRACTOR shall notify the ENGINEER of plug sources 3 (three) days after the contract award.
- B. The CONTRACTOR shall review native plug sources with the ENGINEER prior to ordering. The ENGINEER will accept or reject sources within 4 days.
- C. Upon acceptance of plug source from the ENGINEER, the CONTRACTOR shall order plugs before March 30 or within seven days of receiving the contract, whichever is sooner, and shall submit to the ENGINEER receipt of such order to ensure timely production of plugs.
- D. The CONTRACTOR shall submit an invoice following purchase and delivery of the plugs.
- E. Soil amendments: Copies of invoices shall be provided to the ENGINEER. Samples must be provided if requested by the ENGINEER.
- F. Grading and plug layout shall be reviewed by the ENGINEER prior to completion. Planting zone polygons may be laid out with spray paint prior to planting in order for ENGINEER to review.

CONSTRUCTION

The construction methods shall be in accordance with the 2012 Michigan Department of Transportation Standard Specifications for Construction Section 815.03 and 816.03 unless otherwise stated in this special provision.

PLANTING TIME

- A. Planting for native plugs shall be done after May 1 and before June 15; or after August 31 and before October 30 or as otherwise approved by the ENGINEER.
- B. Planting for trees shall be done, after April 1 and before June 1; or after October 1 or before December 1 or until ground freezes; or as otherwise approved by the ENGINEER.

LAYOUT

- A. Locations of plug species zones, and locations of trees and shrubs shall be established by the CONTRACTOR according to plans.
- B. Plug and perennial zones shall be laid out by paint
- C. Locations for trees and shrubs shall be identified with stakes. Different species shall be clearly labeled and marked with different color ribbon, paint or permanent marker on the stake.
- D. Review: The CONTRACTOR shall notify the ENGINEER when staking and layout is completed and allow two working days for modifications and notice to proceed with planting.

DELIVERY, STORAGE, AND HANDLING

- A. Plant material delivery shall be the same day as planting. No plants shall be stored at the site without permission of the ENGINEER. Plants shall be carefully loaded and unloaded so as not to damage branching or root mass. Dropping of material will not be allowed. Plants in full leaf shall be thoroughly wetted down and completely covered with a wet tarp during transportation.
- B. All plant roots must be kept in a moist condition.
- C. Plant material which is poorly packed, or which arrives with the roots in a dry condition, as a result of improper packing, delay in transit, or from any other cause, will not be accepted. Stock shall be handled in such a manner that the roots shall remain intact, the branches unbroken, and the bark intact and not loosened from the wood. Stock shall be protected from drying and from temperatures below 50 degrees F and in excess of 90 degrees F prior to planting.

NATIVE PLUG AND PERENNIAL PLANTING PROCEDURE

- A. Native Plug stock as per detail:
 - 1. Remove all containers and packaging material before planting and remove from site.
 - 2. Set plants plumb.
 - 3. Do not damage root structure.
 - 4. Thoroughly soak root matter with water.
 - 5. See the Watering and Cultivating section of these specifications for watering during the Establishment Period.
- B. In areas where both plugs and erosion control blanket are present, plugs shall be planted through the blanket after its installation.
- C. The CONTRACTOR shall be responsible to keep the plugs adequately watered, if necessary, to ensure their survival.

TREE PLANTING PROCEDURE

- A. Plant as per MDOT 815.03.F
- B. The shredded hardwood mulch shall be applied to a depth of 3” on 6” of topsoil.
- C. Attach Tree Drip Irrigation Bag per manufacturer’s instructions and fill with water.
- D. The Contractor shall be responsible to keep the plants adequately watered during the guarantee period, if necessary, to ensure their survival.

MEASUREMENT AND PAYMENT

The completed work as described will be measured and paid for at the contract unit prices using the following contract items (pay items).

PAY ITEM

PAY UNIT

Planting, Tree..... Each

Planting, Plug.....	Each
Mulch, Modified	Square Yard

Measurement and payment for the above items shall include excavation and removal of materials, furnishing trees, shrubs and herbaceous material, preparing soil, mulch, bracing/staking materials, irrigation drip bags, water, and all other equipment necessary, and as described herein, for a complete installation.

Mulch, Modified shall include payment for all labor, equipment and materials necessary for supplying and placing a shredded hardwood mulch where indicated on the plans.

The final inspection of all planting work under the Contract will be made by the Contractor and Engineer at the end of the maintenance and establishment periods. Before final acceptance is given, the terms of the establishment shall be met and the site shall be cleared of all debris, soil piles and containers.

**SPECIAL PROVISION
FOR
ITEM # 288 - 289 WATER & CULTIVATING, MODIFIED**

DESCRIPTION

Water, weed, and complete all necessary tasks to maintain a healthy stand of plants within rain garden and bioretention areas, as shown on the plans and/or as specified herein. Complete this work according to the Section 815, 816 & 917 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction and as described herein. Extent of work shall include but not be limited to:

- Watering
- Weed Control
- Mulching
- Disease and insect control
- Pruning
- Fertilizer Application
- Removal of tree support and tags

MATERIALS

MULCH

- A. Material shall be shredded hardwood free of weeds, soil, sticks or trash, of a uniform appearance. Bark will not be accepted. Colored or dyed mulch will not be accepted.

PESTICIDES AND HERBICIDES

- A. Materials shall comply with Local, State and Federal regulations.
- B. Posted signs with public notice of any application of pesticide shall read: "Notice of Pesticide Application", and will include the following information: the name of the pesticide; the date of application; and the appropriate warning term for the EPA toxicity category. These terms are, for toxicity category I: DANGER-POISON. For category II: WARNING. For category III & IV: CAUTION. A website for more information will be printed on them.
- C. Herbicide Types:
 - a. Herbicide-A. Glyphosate, a nonselective herbicide shall be used to eradicate existing vegetation. It shall be used according to the manufacturer's label.
 - b. Herbicide-B. Sethoxydim, a selective herbicide shall be used to selectively remove invasive grass from prairie planting and wet meadow planting (if not adjacent to water). It shall be used according to the manufacturer's label.
 - c. Herbicide-C. Rodeo, a non-selective herbicide shall be used to eradicate existing vegetation in wet meadow areas adjacent to open water. It shall be used according to the manufacturer's label.
- D. Common IPM (Integrative Pest Management) practices shall be followed. Pesticides and herbicides shall be used as a last resort.

FERTILIZER

- A. Materials shall conform to the standards of the Association of Agricultural Chemists and shall comply with State and Federal regulations.
- B. Fertilizer for woody plants shall be an organic, slow release with a ratio of 3-1-2 or 3-1-1 or approved substitution.

- C. Maintenance fertilizer for lawn shall contain no phosphorus, shall be derived from an organic product, and slow release with a ratio of 27-0-12 or approved substitution.
- D. There shall be no fertilizer applied to native plug planting areas.

DELIVERY, STORAGE, AND HANDLING

- A. Packaged materials shall be delivered in original containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and storage.

SUBMITTALS

For each watering and cultivating visit, verification in the form of a report of maintenance activities and certified payroll covering visits shall be provided to the ENGINEER by the end of each month that the visits have taken place.

CONSTRUCTION

WATER CULTIVATING PERIODS

Use the schedule below for maintenance visits. A minimum of one visit is required for each of the following periods.

1. 1 April to 15 April
2. 1 May to 15 May
3. 1 June to 15 June
4. 1 July to 15 July
5. 1 August to 15 August
6. 1 September to 15 September

WATERING

- A. Monitor all plants during site visits for water stress.
- B. Water as required to keep all plants in optimum condition (1 inch of total water per week, including rainfall). Apply water in a slow trickle to allow water to penetrate down into root zone of plant.
- C. Native plugs in the deepest ponding area may require more watering than other planting areas.
- D. Fill the tree drip irrigation bags with water and using the fertilizer as dictated in the MDOT specification.
- E. Any supplemental watering visits necessary to comply with Item B above will be paid for as per MDOT 815.04C.3, and must be approved by the ENGINEER prior to visit.

WEEDING

- A. Frequency shall be every visit.
- B. Methods: Weeds shall be removed by hand. Before application of any herbicide the CONTRACTOR shall receive approval of the ENGINEER. A selective herbicide shall be applied according to manufacturer's directions.

- C. Herbicides shall only be used when and where necessary as approved by the ENGINEER. Manufacturer's directions and precautions must be followed rigorously. Excess herbicides shall be properly removed from the site.
- D. The posting of signs as a public notification of herbicide application will be required 24 hours before and maintained for 48 hours following application.

WEED CONTROL: ALL PLANTING AREAS

- A. Weeding of all planting areas shall occur prior to invasive weed species (Sweet Clover, Burdock, Wild Carrot, Purple Knapweed, Canada Thistle, Queen Anne's Lace, Purple Loosestrife, Phragmites, etc.) setting their seed or as determined by ENGINEER.
- B. Post planting management procedures for Rain Garden planting areas may consist of, but are not limited to the following:
 - 1. Pull invasive weed species to remove root.
 - 2. Spring or fall dormant seasons application of a non-selective herbicide to control invasive weeds. As directed by the ENGINEER. Follow City of Ann Arbor signage requirements for herbicide application.
 - 3. Summer application of a selective herbicide to control invasive weeds. As directed by the ENGINEER. Follow City of Ann Arbor signage requirements for herbicide application.
 - 4. Initial mowing of the Rain Garden and Bioretention areas (using flail mower) may occur after one season of growth when the weeds are ten (10) inches high or prior to invasive weeds setting seed. Mowed height shall be 5". Weeds on slopes 3:1 or greater shall be mowed with a hand-held flail mower or common weed whacker.
- C. Herbicide applications for aggressive weeds shall conform to the following guidelines:
 - 1. Invasive forbs such as purple knapweed, purple loosestrife, garlic mustard, Queen Anne's Lace, Canada thistle, phragmites or other invasive forbs shall be spot controlled beginning in June with Herbicide-A until the end of the first full growing season and/or before the plants set seed.
 - 2. Invasive grasses such as crabgrass, smooth brome, reed canary or other invasive grass shall be spot controlled beginning in June with Herbicide-B until the end of the first full growing season and/or before the plants set seed.
 - 3. Planting Areas adjacent to open water that contain invasive weeds shall be spot controlled beginning in June with Herbicide-C until the end of the first full growing season and/or before the plants set seed.

MULCHING

- A. Monitoring: All mulch beds shall be reviewed in June and September for each Maintenance and Guarantee Period. Any beds that do not meet the following conditions shall be replenished.
 - 1. Depth shall be three (3) inches typical shredded hardwood for individual trees.
 - 2. Depth shall be two (3) inches typical shredded hardwood for perennial areas.
 - 3. Do not allow mulch to be deeper than four (4) inches.
 - 4. Keep mulch four (4) inches away from root collar of trees.

DISEASE AND INSECT CONTROL

- A. Monitoring for diseases and insects shall be the responsibility of the CONTRACTOR. The CONTRACTOR shall monitor all plants at all times for disease and insect problems.
- B. Treatment shall take place in accordance with common IPM practices.
- C. Pesticides shall only be used when and where necessary as approved by the ENGINEER. Manufacturer's

directions and precautions must be followed rigorously. Excess pesticides shall be properly removed from the site.

- D. The posting of signs as a public notification of pesticide application will be required 24 hours before and maintained for 48 hours following application.

PRUNING

- A. Prune all dead wood at first live lateral bud in accordance with standard horticulture practices using sharp instruments cleaned frequently. Pruning shall enhance plant development and ornamental qualities. Do not prune terminal leader or branch tips. A plant's natural form shall not be compromised by any pruning activities.
- B. Additional pruning may be required at the request of the ENGINEER in order to decrease public liability factors.
- C. Remove immediately after pruning all dead, broken and diseased growth and other pruning debris from the site and dispose of in an environmentally sensitive manner.
- D. Plant material that is "topped" by the CONTRACTOR shall be replaced at the CONTRACTOR's expense.

MAINTENANCE FERTILIZER APPLICATION

- A. Application shall be according to manufacturer's directions.
- B. Woody Plants
 - 1. Maintenance Fertilizer application for woody plants shall occur in November of the Second Maintenance and Guarantee Period
 - 2. Topdress at a rate of 1 pound of nitrogen per 1,000 square feet
- C. Lawn
 - 1. Maintenance Fertilizer application for lawn shall occur in May and October of the First and Second Maintenance and Guarantee Periods. For Spring seeding, commencement of maintenance fertilizer shall begin the subsequent fall. For Fall seeding, commencement of maintenance fertilizer shall begin the subsequent spring.
 - 2. For May fertilizing, topdress at a rate of half (.5) a pound of nitrogen per 1,000 square feet.
 - 3. For October fertilizing, topdress at a rate of one and a half (1.5) pounds of nitrogen per 1,000 square feet

REMOVAL OF TREE SUPPORT AND TAGS

- A. Repair all damaged guys and stakes during the First Maintenance and Guarantee Period
- B. Remove all stakes, guys, labels and support material at the end of the First Maintenance and Guarantee Period and remove from site.

ESTABLISHMENT AND ACCEPTANCE: NATIVE PLANTING AREAS

- A. Establishment of a dense stand of wet meadow perennial grasses and/or flowers as specified is the responsibility of the CONTRACTOR. Any part of the area that fails to thrive shall be re-planted until a dense planting in these areas is established.
- B. Watering: The CONTRACTOR shall keep plugs and seed moist for optimum plant growth (1" of total water

per week, including rainfall) until the grass and/or flowers are four (4) inches high typical.

- C. Erosion shall be repaired by the CONTRACTOR.
- D. Protect planted area from traffic and erosion. Safety fences and/or silt fence with appropriate signage may be used at the CONTRACTOR’s expense until the grasses and flowers are fully established.
- E. Provisional Acceptance: By the end of the first full growing season, 80% total cover with no bare areas as large as 8’ square shall be established as determined by the ENGINEER.
- F. Second Year Acceptance: By the end of the second growing season, 90% total cover with no bare areas as large as 8’ shall be established as determined by the ENGINEER.
- G. Bare areas as large as 8’ square shall be re-plugged by the CONTRACTOR without additional compensation.
- H. Acceptance will be when the above requirements have been met.

ESTABLISHMENT AND ACCEPTANCE: RAIN GARDEN & BIORETENTION PLANTING AREAS

- A. Establishment of a dense stand of perennial grasses and/or flowers as specified is the responsibility of the CONTRACTOR. Any part of the area that fails to thrive shall be re-planted until a dense planting in these areas is established.
- B. Watering: The CONTRACTOR shall keep plants moist for optimum plant growth (1” of total water per week, including rainfall) until the Second Season has passed.
- C. Erosion shall be repaired by the CONTRACTOR.
- D. Provisional Acceptance: By the end of the first full growing season, 90% total individual plants within a single Rain Garden area shall be established as determined by the ENGINEER.
- E. Second Year Acceptance: By the end of the second growing season, 90% total individual plants within a single Rain Garden area shall be established as determined by the ENGINEER.
- F. Dead plants in excess of 10% total individual plants within one planting area shall be re-planted by the CONTRACTOR without additional compensation.
- G. Acceptance will be when the above requirements have been met.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Watering & Cultivating, First Season, Min. \$5,000, Modified.....	Lump Sum
Watering & Cultivating, Second Season, Min. \$5,000, Modified	Lump Sum

The unit price includes all labor, equipment, materials, and documents necessary to maintain healthy native plantings through the establishment period in the rain garden and bioretention areas.

**SPECIAL PROVISION
FOR
ITEM # 290 - RAIN GARDEN**

DESCRIPTION

Provide all labor and materials to construct rain gardens as detailed on the drawings and specified herein, and as needed for complete and proper installation. Extent of work shall include but not be limited to: excavation, backfill and earthwork to achieve rough grades, placement of impervious liner, placement of aggregate and sand bases, compaction, construction of boulder retaining walls, placement of growing media, placement of riprap in forebays, placement of steel edging, landscape fabric, and river rock mulch.

MATERIALS

A. FOREBAY

Use materials conforming to Section 813, 910 & 916 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, and as per Special Provision for Rip Rap, Plain, Modified herein.

B. STEEL EDGING

Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes.

1. Edging Size: 3/16 inch wide by 4 inches deep
2. Stakes: Tapered steel, a minimum of 15 inches long
3. Accessories: Standard tapered ends, corners, and splicers.
4. Finish: Standard paint
5. Color: Green

C. RIVER ROCK MULCH

The river rock must be 1.5 inch to 2 inch native Michigan brown/gray river rock. The material must be clean and round in shape. Submit a sample of the rock to the Engineer for approval prior to delivery.

D. LANDSCAPE FABRIC

Landscape fabric must be black, woven polypropylene, 5 ounce, needle punched and UV stabilized. Fabric must be 98.7 percent opaque to light and have a flow rate minimum of 6 gpm/sqft. Submit manufacturer's material specifications and a 12 inch × 12 inch fabric sample to the Engineer for approval prior to delivery.

E. SITE PREPARATION

Provide all labor and materials for site preparation according to the Section 205, 815, 816 and 917 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, and as per Special Provision for Bioretention Site Preparation herein.

F. TOPSOIL

Use salvaged or furnished topsoil as conforming to Section 205, 815, 816 and 917 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction.

G. BOULDER RETAINING WALLS

1. Materials will conform to Sections 813, 910 & 916 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction except as described herein and detailed on the plans.
2. Stone for Boulder Retaining Wall to be MDOT Heavy Rip Rap. Stone will be Natural Stone, rounded Michigan glacial erratics. Concrete will not be accepted. Stone shall be of the size and characteristics specified on the drawings.
3. Bedding Stone shall be MDOT 21AA, compact to min. 95% of modified proctor test.
4. Broken concrete will not be allowed.

H. LINER, PVC, 30 MIL

1. The resin used to manufacture the PVC liner must be 100 percent first quality virgin polyvinyl

chloride. The PVC liner must be resistant to ultraviolet degradation, construction damage and to all forms of biological and chemical degradation normally encountered in highway construction applications. The following physical properties must be certified as minimum values:

<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
Thickness Tolerance	ASTM D 1593	5 ± %
100 % Modulus	ASTM D 882	1000 psi
Elongation @ Break	ASTM D 882	300 %
Dimensional Stability, % change (maximum)	ASTM D 1204 (212 °F, 15 minutes)	5 %

2. A manufacturer's certification must be provided with each PVC liner material shipment and must include a certified report of quality control test results obtained from the lot(s) of material in the shipment. Each unit of material must be labeled to provide product identification sufficient for field identification and correlation to certified test results. The specified physical properties must be certified as Minimum Average Roll Values (MARV).

SUBMITTALS

- A. CONTRACTOR to provide manufacturer product data, certifying that each material item complies with specified requirements.
- B. The CONTRACTOR shall provide full scale samples of each stone type indicated, representative of all variations to be expected in the finished installation.

CONSTRUCTION

EARTHWORK

Complete this work according to the Section 205 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, and Special Provision for Machine Grading, Modified except as described herein.

FOREBAY

Complete this work according to the Section 813, 910 & 916 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, and as per Special Provision for Bioretention & Rain Garden Riprap herein.

STEEL EDGING

Install steel edging where indicated according to manufacturer's written instructions. Anchor with steel stakes spaced approximately 30 inches apart, driven below top elevation of edging.

RIVER ROCK MULCH & LANDSCAPE FABRIC

Grade to required depth, install landscape fabric and place river rock conforming to the bed outlines shown on the plans and as directed by the Engineer. River rock must be placed over the landscape fabric at a minimum depth of 4 inches with finish grade being level with the top of the steel landscape edging.

SITE PREPARATION

Complete this work according to the Section 205, 815, 816 and 917 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, and as per Special Provision for Bioretention Site Preparation herein.

TOPSOIL

Place according to the details on the plans, and the Section 205, 815, and 816 of the MDOT 2012 Standard Specifications for Construction.

PVC LINER

Install the PVC liner according to the manufacturer's published guidelines, the plans and this special provision.

BOULDER RETAINING WALL

Deliver, store and handle materials in a manner to prevent damage and deterioration to materials or existing site improvements.

Excavation, Subgrade, and Backfill

- A. Strip vegetation and organic soil from retaining wall footprint to expose suitable inorganic subgrade.
- B. Do not excavate beyond excavation boundary shown as silt fence on plan unless directed by site soils engineer to remove unsuitable soil.
- C. Contractor shall ensure temporary excavations are stable and provide excavation support if needed.
- D. Soil behind the retaining wall shall be compacted to a minimum of 95% of maximum standard proctor density or as required per the individual weir sections.
- E. Compaction within 3 feet of the retaining wall shall be limited to hand operated equipment. Contractor shall slope site grades to direct surface runoff away from retaining wall at end of each day to avoid water damage to the weir while under construction.
- F. Temporary erosion control measures, including erosion control blanket and temporary seeding shall be installed immediately after wall is completed.

Placing Boulder Retaining Walls

- A. Installation shall conform to MDOT section 813.03.E.1 Heavy Riprap 2012 Standard Specifications for Construction and as indicated herein and shown on the drawings.
- B. All Boulder Retaining Walls shall conform to design and details as shown on drawings. The first course of rock shall be placed on MDOT 21 AA crushed aggregate compacted to 95% of the modified proctor test. The sub-base material shall be class II sand, or curb and gutter base material as specified in the road section. There should be full contact between the rock and base material, which may require sub-grade shaping or slamming of the rocks into place. The placement of the first course of rock shall be embedded a minimum of 3" below the lowest adjacent sub-grade.
- C. Where rock is constructed in front of a fill operation, all fills should be placed in lifts not exceeding 12 inches in loose thickness.
- D. Walls shall be constructed as shown on the plans – this is expected to require hand work when placing stone.
- E. Horizontal contact shall exist between each stone within the thickness of the stone. If there is no contact within the rock wall thickness the void shall be chinked with a smaller piece of rock.
- F. Stone units should be placed to create a level, linear wall with no continuous vertical joint planes. Each rock shall be placed to bridge the lower construction joints of the wall.
- G. Stagger courses of stone units to break up gaps between individual stone units to achieve a random appearance. ENGINEER shall determine final appearance of walls. CONTRACTOR to coordinate efforts with ENGINEER to achieve the desired appearance.
- H. Stone units shall be installed by staking individual units on top of one another so as to maintain a generally level surface atop each course of the stacked stone.
- I. Each Stone unit shall maintain intimate contact with the respective stone units above and/or below one another.

- J. The wall front shall be constructed at a minimum setback (or batter) from vertical of 7 degrees, unless otherwise noted on the plan and/or profile sections of the design plans.
- K. Stone units with the largest width shall be placed at the base of the wall, stacking stone units with progressively smaller widths atop the units of larger widths, as the elevation of the weir construction continues upward to the top of the weir. The stone units shall comply with the minimum stone widths provided on the design plans for a given vertical distance from top of the wall.
- L. Ends of walls shall taper or feather into proposed finished grades
- M. CONTRACTOR shall field verify and or correct any dimensions shown on Drawings.

PVC LINER

Place the PVC liner, free of wrinkles, on prepared areas at the locations shown on the plans. Do not allow construction equipment or vehicles of any kind directly on the PVC liner. The Contractor may place adjacent pieces of PVC liner without field seams provided that a minimum 24 inch shingle-lap is utilized, unless otherwise specified.

MEASUREMENT AND PAYMENT

The pay item Rain Garden includes all of the work as described above to provide all labor and materials to construct rain gardens. The following items will be paid for separately:

- Sodding
- Plantings
- Mulch blankets
- Mulch
- Concrete weirs
- Concrete curb cuts will be paid for with “Spillway, Concrete”.

The completed work as measured will be paid for at the Contract Unit Price for the following contract items (pay items):

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Rain Garden.....	Square Foot

The unit price of Rain Garden will be measured from back of steel edge to back of steel edge or back of curb (as appropriate), and includes all labor, equipment, materials, and documents necessary to install the Rain Gardens as detailed in the plans.

**SPECIAL PROVISION
FOR
ITEM # 291 - MULCH BLANKET, MODIFIED**

DESCRIPTION

This work shall consist of furnishing material, installing per manufacturer's recommendations, and maintaining blankets until vegetation is fully established. All work shall be in accordance with Section 816 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as herein provided:

MATERIALS

The erosion control blanket shall be composed of coconut fiber and shall have the following properties:

Matrix - 100% coconut fiber. (0.50 lbs/syd)

Netting - Top-Leno woven 100% biodegradable organic jute fiber (9.30 lbs/1000sft) approximate weight. Bottom - 100% biodegradable organic jute fiber (7.7lbs/1000sft) approximate weight.

Thread - Biodegradable.

Physical Specifications

Width +/- 5% 6.67ft.

Length +/- 5% 108 ft.

Weight +/- 52.22 lbs.

Area 80 syd.

Stitch Spacing for all rolls = 1.50 inches.

Erosion control blanket shall be manufactured with a colored line or thread along outer edges to ensure proper material overlapping. Manufacturer's recommended fastening pattern must be clearly marked on blanket to insure proper anchorage to soil.

Biodegradable fasteners supplied by manufacturer based on type of installation required. Stakes shall be of sound wood. Stake approximately one (1) stake per one (1) square foot.

Installation instructions must be supplied with each delivery of erosion control blankets.

SUBMITTALS

The CONTRACTOR shall submit to the ENGINEER a sample of the Erosion Control Blanket

MEASUREMENT AND PAYMENT

The completed work as described will be measured and paid for at the contract unit prices using the following contract items (pay items).

PAY ITEM

Mulch Blanket, Modified

PAY UNIT

Square Yard

Mulch Blanket, Modified will be measured in place respectively by the unit square yard and paid for respectively at the contract unit price per square yard, which price shall be payment in full for all labor, materials and equipment needed to accomplish these items of work. Overlap is not paid for but included in installation. Also included in the unit price is the work of maintaining the blanket as required by the Engineer until area fully established.

**SPECIAL PROVISION
FOR
4' BIORETENTION SITE PREPARATION**

GENERAL

Prepare the site for planting as required by the Plans and in accordance with Section 205, 815, 816 and 917 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, except as herein provided. Extent of the work shall include but not be limited to: digging holes, providing and placing prepared soil, backfilling holes, and disposing of excess excavated material at the locations identified on the plans as the Garden Homes and Miller Park Bioretention Areas.

MATERIALS

Prepared soil for landscaping shall be 50% salvaged topsoil, and 50% compost, to the depth indicated on the plans. Peat moss shall not be used.

CONSTRUCTION

MIXING PREPARED SOIL

- A. Mix salvaged topsoil and compost to achieve a uniform mixture of 50% salvaged topsoil, and 50% compost.
- B. Soil preparation and placement will not be allowed when materials are wet and/or saturated. Compost stockpiled on site must be kept dry.
- C. Silt fence shall be placed around stockpiles.
- D. Any disturbance to the site as a result of the mixing process shall be repaired at the expense of the Contractor.
- E. It is the responsibility of the contractor to estimate and achieve adequate quantities to cover the planting area to the depth indicated on the plans.

PLACING PREPARED SOIL

- A. Upon completion of rough grading, decompact subgrade and scarify surface, to a minimum depth of six (6) inches.
- B. Following soil ripping, prepared soil topsoil shall be placed to a minimum depth of six (6) inches, or as otherwise indicated on the plans.
- C. Repair prepared soil surface as directed by the ENGINEER so that finish grades are met.
- D. Final grades will be reviewed by the ENGINEER prior to planting.

MEASUREMENT AND PAYMENT

The completed work as described will be measured and paid for at the contract unit prices using the following contract items (pay items).

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Bioretention Site Preparation,	Square Yard

The unit price includes all labor, equipment, materials, and documents necessary to prepare the site for planting, including digging holes, providing and placing prepared soil, backfilling holes, and disposing of excess excavated material.

**DETAILED SPECIFICATION
FOR
*****ITEM #295 – BRICK PAVERS, ANY TYPE**

DESCRIPTION

This work shall consist of placing sidewalk pavers, furnishing and installing sand base, concrete base, fine aggregate leveling bed, fine aggregate joint filler, and any additional brick pavers required in accordance the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

MATERIALS

Aggregate base, where required, shall consist of MDOT 21AA in accordance with Section 300 of the 2012 MDOT Standard Specifications for Construction.

Sand base, where required, shall consist of Class II granular material in accordance with Division III of the City of Ann Arbor Standard Specifications.

Concrete base, where required, shall be constructed of Class A Portland cement concrete.

Fine aggregate leveling bed shall consist of a 3:1 mix of MDOT 2NS (3 parts) and Type N mortar (1 part). Fine aggregate joint filler shall consist of MDOT 2MS.

Filter fabric conforming to Form 816, Section M.08.01.26 shall be used when dry setting brick.

Paving bricks shall conform to ANSI/ASTM C 902-79a Standard Specification for Pedestrian and Light Traffic Paving Brick, Class SX, Type II (Referred to as Glen-Gary Paver) or equivalent as approved by the Engineer. A brick shall be submitted to the Engineer for approval prior to placement of any brick pavers. Replacement brick shall match the existing brick as closely as possible.

CONSTRUCTION METHODS

Where an existing base is not present, the subbase shall be removed to a sufficient depth for construction of the proposed section as shown on the attached detail, or as directed by the Engineer.

Where the plans specify mortar set brick, the bricks shall be installed on 8 inches of compacted processed aggregate base and 5 inches of Portland Cement Concrete installed monolithically with the adjacent sidewalk as shown in the plans and details. All mortar set bricks shall be set on a bed of mortar. All joints shall be mortared, being careful not to get mortar on exposed faces of brick.

There shall be no expansion joint between the concrete sidewalks and the brick pavers. Transverse expansion joints in the concrete sidewalks shall be carried through the concrete base and the brick pavers. The transverse expansion joints shall also be carried through the brick pavers. Transverse dummy joints in the concrete side walk shall not be carried through the concrete base under the brick pavers. An expansion joint shall be made between the curb and concrete/brick face.

Where the plans specify dry set brick, they shall be installed on 8 inches of compacted processed aggregate with filter fabric placed on top of the aggregate. The leveling course on top of the filter fabric shall consist of a minimum 3/4 inches (maximum 1 1/4 inches) of compacted crushed stone dust or washed sand. Control bars and/or guides shall be used to screed the fine aggregate leveling bed. When placed, the bricks shall tightly abut each other. Exposed edges of bricks shall be set on a plastic angle edge restraint. Newly laid pavers are to be protected at all times by plywood panels on which workers stand. A minimum of three (3) passes of a plate vibrator (min. 5,000 lbs compaction force) shall be made to set paving units in leveling course prior to filling joints. Pavers should be protected from chipping and cracking during compaction.

Fine aggregate joint filler shall be spread over paver surface and broomed into joints, and misted lightly with water to settle sand into joints. Allow to surface dry and repeat process until joints are filled completely. Remove excess sand upon completion.

The Contractor shall take any necessary precautions to prevent damage to pavers during removal and replacement. The Contractor is not entitled to any additional compensation for such replacement of damaged pavers.

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

MEASUREMENT AND PAYMENT

Completed work as measured for this item of work will be paid for at Contract Unit Price for the following Contract Pay Item:

PAY ITEM

Brick Pavers, Any Type

PAY UNIT

Square Foot

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

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

The Contractor is reminded as to the requirements of article 104.07 of the 2012 edition of the MDOT Standard Specifications, "Cooperation by the Contractor."

The Contractor shall directly coordinate his/her work with individual City Departments/Divisions/Units.

The Contractor is hereby notified that the City of Ann Arbor Field Services Unit may be installing traffic control conduits, traffic signal sensors, and the like, at various locations.

No additional compensation will be paid to the Contractor, and no adjustments to contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.

The following Utility Owners may have overhead and/or underground facilities located within the Right-of-Way:

- The City of Ann Arbor
- DTE - MichCon (Michigan Consolidated Gas Company)
- DTE - Edison (Detroit Edison Company)
- SBC - (Ameritech)
- Comcast
- MCI Communications
- Sprint Communications
- The University of Michigan

On all projects:

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

The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way.

Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL**

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

**DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES**

Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense. Delays to the work due to utility repairs are the sole responsibility of the Contractor.

The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be back charged an amount of \$50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including subcontractors and suppliers) work.

The Contractor is solely responsible for any damages to the utilities or abutting properties due to construction debris.

Certain sanitary and storm sewers within the influence of construction may have been cleaned and videotaped prior to construction. The City may also choose to videotape utility line(s) during or after the work of this Contract to inspect them for damages and/or construction debris. If such inspection shows damage and/or debris, then all costs of such inspection, cleaning, repairs, etc, shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
SOIL EROSION CONTROL**

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

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

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

The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as and when directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to, and for street and utility structure cleaning after any and all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
PARKING METER COVERS (METER BAGS)**

A portion of the proposed work or staging area may be along streets which contain parking meters for on-street parking. The Contractor shall coordinate directly with **Republic Parking, telephone (734) 761-7235** for the rental of a sufficient number of Parking Meter Covers (Meter Bags), which, when properly installed by the Contractor in a timely manner, will prohibit parking at metered parking spaces.

Meter Bags must be installed a minimum of 24-hours prior to the desired time of enforcement. Written documentation and/or visual inspection by City personnel may be required to adequately verify this requirement.

The Parking Enforcement Office will be unable to enforce the desired "No-Parking Zone" unless the Contractor installs the Meter Bags in a proper and timely manner.

The Contractor has the sole responsibility for Meter Bag rentals, placement, and maintenance. Delays due to on-street parking shall not be cause for any extra payments to the Contractor.

Information regarding the rental of Meter Bags, and the temporary prohibition of on-street parking, is available from **Republic Parking, telephone (734) 761-7235.**

Any unpaid City services/material charges commissioned by the Contractor, his/her subcontractors or agents shall be deducted from the payments due the Contractor for the completed work.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
SITE CLEAN-UP**

Immediately after completion of construction on each street, the Contractor shall clean the entire area within the influence of construction, including but not limited to all pavement, sidewalks, lawn areas, and underground utility structures, of all materials which may have accumulated prior to or during the construction.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS**

The following materials and supplies shall be certified by the manufacturer or supplier as having been tested for compliance with the Specifications:

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

The Contractor shall submit all certifications to the Engineer for review and approval a minimum of three business days prior to any scheduled delivery, installation, and/or construction of same.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

**DETAILED SPECIFICATION
FOR
CONTRACT DRAWINGS/PLANS**

The Contractor shall carefully check and review all Drawings/Plans and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.

**DETAILED SPECIFICATION
FOR EXISTING
SOIL BORING AND PAVEMENT SECTION DATA**

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

DETAILED SPECIFICATION

**FOR
WORKING IN THE RAIN**

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

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

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

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

**DETAILED SPECIFICATION
FOR
WORKING IN THE DARK**

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract.

The Engineer may stop the work, or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work.

The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

**DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES**

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

**DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES**

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

1. All work shall conform to latest revision of the City Standard Specifications.
2. The Contractor shall maintain access to all drives throughout the course of construction. Drives shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.
3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.
4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include, but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so as not to damage or alter in any way, any existing utility, except where specified on the Plans or where directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all of these facilities to be in good condition, with the exception of those shown on the Plans for repairs or replacement.
5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.
6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

**DETAILED SPECIFICATION
FOR
WATER MAIN INSTALLATION AND TESTING**

DESCRIPTION

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction with regard to water main installation and hydrologic and bacteriologic testing. It is also intended to establish minimum requirements for the work that the Contractor is responsible to follow.

CONSTRUCTION METHODS

During the delivery, handling, installation, and testing of the water main, the Contractor shall comply with the following requirements:

1. Keep all pipe clean and neatly stacked a minimum of six-inches off of the ground at all times. Ends of pipe shall be covered to prevent entry of dust, dirt, small animals, and any other objectionable matter at all times. During installation of the water main and all appurtenances no dirt, soil, or non-potable water shall be allowed to enter the pipe. If dirt, soil, or non-potable water does enter the pipe, the Contractor shall completely remove it prior to installing the next segment of pipe. Segments of pipe that have visible signs of contamination including, but not limited to; soil, dirt, mud, oil, grease, solvents, animal droppings, etc. shall have all visible traces of the offending substance completely removed by the Contractor in a manner acceptable to the Engineer. Sections of pipe or fittings that have been marked by the Engineer for cleaning shall not be approved for installation until such time as the Engineer has again approved them for use on the project. Acceptable methods of cleaning include flushing and/or power washing, compressed air, or other methods that the Engineer may approve. Approval by the Engineer of a cleaning method shall not be construed by the Contractor to include acceptance of the water main for the purposes of placing it into service. Water main pipe and fittings that have been placed shall remain covered on the advancing end until the next segment of pipe is connected. The Contractor may uncover no more than three segments of pipe in advance of placement. Water main pipe and fittings that have been laid out further in advance of the installation operation must remain covered.
2. Gasket lubricant shall only be applied immediately before connection to the next segment of pipe. Pipe with lubricant applied shall not come in contact with the ground. If the lubricated portion of the pipe end contacts the ground, it shall be thoroughly cleaned to the satisfaction of the Engineer, prior to its installation.
3. All water main shall be swabbed in accordance with the requirements of Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standards. During swabbing of the water main, the swab shall be flushed through the pipe in accordance with the manufacturer's recommendations and in a manner that is acceptable to the Engineer. The Contractor shall submit the product data of the swab from the manufacturer, for review and approval by the Engineer, at or before the pre-construction meeting.
4. Swabbing of the water main shall be followed immediately by flushing of the pipe so that any disturbed particles are washed out before they can resettle. The pipe shall be flushed in accordance with Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standard Specifications. The pipe shall be flushed until the water runs clear for a minimum of fifteen minutes or until two full pipe volumes have been flushed (whichever is longer.) Flushing from the existing water main that is to be replaced shall not be allowed.

5. During the chlorination process, the proper level of chlorination must be achieved throughout the entire length pipe. Chlorine levels shall be checked at intermediate locations as directed by the Engineer and the Contractor shall add chlorine until such time as the required levels are achieved at all points. The “plug method” of chlorinating the pipe shall not be allowed. The Contractor shall chlorinate the proposed water main to a minimum residual concentration of 100 parts per million with commercial liquid chlorine solution. The chlorine concentrate shall be a minimum of 10% chlorine (sodium hypochlorite) by volume. Solid chlorine “pellets” or powder shall not be allowed. Any chlorine containing compound used on the project shall be approved by the Engineer. The minimum recommended dosage of chlorine (sodium hypochlorite) is as follows (based on 10% available chlorine):

Recommended Minimum Chlorine Dosage to Disinfect 100 L.F. of Pipe

<u>Pipe Diameter</u>	<u>10% Chlorine Solution (gallons)</u>
6	0.306
8	0.544
10	0.852
12	1.226
16	2.180
20	3.406
24	4.904

6. Bacteriological testing shall be performed by the City with the Contractor present. The Engineer shall determine the number, location, and type of testing points for each section of water main being tested. Bacteriological samples shall only be drawn from copper or brass sampling points. The use of galvanized steel blow-offs or sampling points are strictly prohibited. Obtaining bacteriological samples from fire hydrants will not be allowed.
7. If a new water main fails two consecutive sets of bacteriological tests, the Engineer may require the Contractor to re-swab the water main in accordance with Section 3H, Flushing and Swabbing, as described above. Additional flushing, prior to subsequent bacteriological sampling will also be required. The required additional swabbing and flushing of the water main by the Contractor shall be performed at no additional cost to the City of Ann Arbor.

MEASUREMENT AND PAYMENT

Payment for all labor, materials, and equipment that is required to comply with this Detailed Specification shall be considered as part of the unit price as bid for each respective water main pipe and fitting and will not be paid for separately.

Payment for all water main pipe shall be as follows:

The Contractor shall be paid for 50% of the water main pipe installed upon satisfactory completion of the installation and backfilling of the water main pipe. The remaining 50% shall be paid upon successful completion of all required bacteriological testing, the water main has been placed into service, and all water service leads have been connected and are in service.

**DETAILED SPECIFICATION
FOR
ASPHALTIC SEAL COATINGS
DUCTILE IRON PIPE FITTINGS**

DESCRIPTION

The Contractor may not operate City water main valves. For valve operation, contact the City of Ann Arbor Public Services Area. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly.

Several items of work on this project require coordination with the City of Ann Arbor Public Services Area (The City). The Contractor shall notify the City three (3) full working days in advance of any items requiring coordination with the City.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service. Water quality issues arise and treatment costs increase when the well field system is taken off line. No shut downs at the well field shall occur on Saturdays or Sundays. Shut downs shall not be for longer than 8.0 hours for any given shutdown event. Liquidated damages as detailed and described on page C-2 of these documents shall apply to any shut downs that occur on Saturday or Sunday or for a period of time longer than 8.0 hours in any given 24 hour period.

The Contractor shall be responsible for coordination with the City of Ann Arbor Public Services Area for the installation of 1-inch corporations in the gate wells to be used for testing and filling of new main. The Contractor shall pay the City of Ann Arbor's Field Operations Unit all costs associated with installing the corporations.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on site before the City of Ann Arbor Public Services Area personnel will prepare and shutdown an existing main.

The Contractor shall dig-up and expose utility crossings 60-feet in advance of laying any water main pipe in their vicinity. This will allow the Engineer to adjust the grade of the water main, if possible, to avoid the existing utilities. The costs of the advance excavations, and related costs, shall be included in the respective items of work listed in the Bid Form. Some dig-ups may need to occur out of Phase.

All ductile iron pipe and fittings shall have an asphaltic seal coat on their cement-mortar linings. The coatings shall meet the requirements of ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, and be approved for contact with drinking water.

MEASUREMENT AND PAYMENT

Asphaltic seal coat for ductile iron pipe and fittings shall not be measured or paid for separately. This work shall include all labor, materials and equipment costs necessary to provide asphaltic seal coat of ductile iron pipe and fittings. Payment for this work shall be considered as part of the unit price for each respective ductile iron pipe and fitting unit price.

**DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY**

DESCRIPTION

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

MATERIALS

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

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

* Fine and coarse aggregates shall consist of natural aggregates as defined in the 2012 MDOT Standard Specifications Section 902.02.A.1.

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

Alkali-Silica Reactivity

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

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

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

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

The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are

that the Calcium Oxide (CaO) percent shall be less than 10 % and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxides ($\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$) of 66% and a minimum SiO_2 of 38% may be used in lieu of Type F fly ash.

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

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

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

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

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

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

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

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

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

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

Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable,

concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

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

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

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

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

CONSTRUCTION METHODS

Aggregate Control

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

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

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

Mixing

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

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

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

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

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

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

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

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

Curing

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

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

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

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

COMPLIANCE WITH STANDARDS

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

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

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

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

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

MEASUREMENT AND PAYMENT

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

Appendix A

Contract Compliance Forms

**CITY OF ANN ARBOR PROCUREMENT OFFICE
HUMAN RIGHTS CONTRACT COMPLIANCE FORM**
Entire Organization (Totals for All Locations where applicable)

Form #1

Name of Company/Organization _____ Date Form Completed _____

Name and Title of Person Completing this Form _____ Name of President _____

Address _____ County _____ Phone # _____
(Street address) (City) (State) (Zip) (Area Code)

Fax# _____ Email Address _____
(Area Code)

EMPLOYMENT DATA

Job Categories	Number of Employees (Report employees in only one category)												
	Male						Female						TOTAL COLUMNS A-L
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaskan Native	
	A	B	C	D	E	F	G	H	I	J	K	L	
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
TOTAL													
PREVIOUS YEAR TOTAL													

**CITY OF ANN ARBOR PROCUREMENT OFFICE
HUMAN RIGHTS CONTRACT COMPLIANCE FORM**
Local Office (Only those employees that will do local or on-site work, if applicable)

Form #2

Name of Company/Organization _____ Date Form Completed _____

Name and Title of Person Completing this Form _____ Name of President _____

Address _____ County _____ Phone # _____
(Street address) (City) (State) (Zip) (Area Code)

Fax# _____ Email Address _____
(Area Code)

EMPLOYMENT DATA

Job Categories	Number of Employees (Report employees in only one category)												TOTAL COLUMNS A-L
	Male						Female						
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	
A	B	C	D	E	F	G	H	I	J	K	L		
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
TOTAL													
PREVIOUS YEAR TOTAL													

City of Ann Arbor Procurement Office

INSTRUCTIONS FOR CONTRACTORS

For Completing CONTRACT COMPLIANCE FORM

City Policy

The “non discrimination in contracts” provision of the City Code, (Chapter 112, Section 9:161) requires contractors/vendors/grantees doing business with the City not to discriminate on the basis of actual or perceived race, color, religion, national origin, sex, age, condition of pregnancy, marital status, physical or mental limitations, source of income, family responsibilities, educational association, sexual orientation, gender identity or HIV status against any of their employees, any City employee working with them, or any applicant for employment. It also requires that the contractors/vendors/grantees include a similar provision in all subcontracts that they execute for City work or programs.

This Ordinance further requires that each prospective contractor/vendor submit employment data to the City showing current total employee breakdown by occupation, race and gender. This allows the Human Rights Office to determine whether or not the contractor/vendor has a workforce that is reflective of the availability of women and under-represented minorities within the contractor’s labor recruitment area (the area where they can reasonably be expected to recruit employees). ***This data is provided to the City on the Human Rights Contract Compliance Forms (attached).***

To complete the form:

1) If a company has more than one location, then that company must complete 2 versions of the form.

- **Form #1** should contain the employment data for the **entire corporation.**
- **Form #2** should contain the employment data for those employees:
 - who will be working on-site;
 - in the office responsible for completing the contract; or,
 - in the case of non-profit grantees, those employees working on the project funded by the City grant(s).

2) If the company has only one location, fill out Form #1 only.

3) Complete all data in the upper section of the form including the name of the person who completes the form and the name of the company/organization’s president.

4) Complete the Employment Data in the remainder of the form. Please be sure to complete all columns including the Total Columns on the far right side of the form, and the Total row and Previous Year Total row at the bottom of the form.

5) Return the completed form(s) to your contact in the City Department for whom you will be conducting the work.

For assistance in completing the form, contact:

Procurement Office of the City of Ann Arbor
734/794-6576

If a contractor is determined to be out of compliance, the Procurement Office will work with them to assist them in coming into compliance.

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2013 - ENDING APRIL 29, 2014

\$12.52 per hour

If the employer provides health
care benefits*

\$13.96 per hour

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

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

ENFORCEMENT

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

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

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

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

**For Additional Information or to File a Complaint Contact
Karen Lancaster at 734/794-6500 or Klancaster@a2gov.org**

**ATTACHMENT C
CITY OF ANN ARBOR
LIVING WAGE ORDINANCE
DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that employers providing services to the City or recipients of grants for financial assistance (in amounts greater than \$10,000 in a twelve-month period of time) pay their employees who are working on the City project or grant, a minimum level of compensation known as the **Living Wage**. This wage must be paid to the employees for the length of the contract/project.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from the Ordinance. If this exemption applies to your firm, please check below:

- _____ This **company** is exempt due to the fact that we employ or contract with fewer than 5 individuals.
_____ This **non-profit agency** is exempt due to the fact that we employ or contract with fewer than 10 employees.

The Ordinance requires that all contractors/vendors and/or grantees agree to the following terms:

- a) To pay each of its employees performing work on any covered contract or grant with the City, no less than the living wage, which is defined as \$12.52/hour when health care is provided, or no less than \$13.96/hour for those employers that do *not* provide health care. It is understood that the Living Wage will be adjusted each year on April 30, and covered employers will be required to pay the adjusted amount thereafter. The rates stated above include any adjustment for 2013.
- b) Please check the boxes below which apply to your workforce:
- Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage without health benefits Yes_____ No_____
- OR**
- Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage with health benefits Yes_____ No_____
- c) To post a notice approved by the City regarding the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- d) To provide the City payroll records or other documentation as requested; and,
- e) To permit access to work sites to City representatives for the purposes of monitoring compliance, investigating complaints or non-compliance.

The undersigned authorized representative hereby obligates the contractor/vendor or grantee to the above stated conditions under penalty of perjury and violation of the Ordinance.

Company Name

Address, City, State, Zip

Signature of Authorized Representative

Phone (area code)

Type or Print Name and Title

Email address

Date signed

Questions about this form? Please contact:
Procurement Office City of Ann Arbor
Phone: 734/794-6500

Appendix B

Standard Contract Language for Clean Water and Drinking Water State Revolving Fund

REQUIRED STANDARD CONTRACT LANGUAGE: CLEAN WATER STATE REVOLVING FUND AND DRINKING WATER REVOLVING FUND

- **Davis-Bacon/Prevailing Federal Wages, Including Labor Standards Provisions**
- **Disadvantaged Business Enterprise (DBE) Requirements***
- **Debarment/Suspension Certification***

*** Bidders should note these sections contain instructions regarding forms/information that must be completed/included with any submitted bid.**

Davis-Bacon/Prevailing Federal Wage Rates

P.L. 111-88 requires compliance with the Davis Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see Wage Decision included herein) must be paid on this project. The Wage Decision, including modifications, must be posted by the Contractor on the job site. A copy of the Federal Labor Standards Provisions is included and is hereby a part of this contract.

General Decision Number: MI130001 01/04/2013 MI1

Superseded General Decision Number: MI20120001

State: Michigan

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

Counties: Michigan Statewide.

Modification Number 0 Publication Date 01/04/2013

CARP0004-004 06/01/2011

REMAINDER OF STATE

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 25.34	15.42

CARP0004-005 06/01/2012

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

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 28.24	22.70

ELEC0017-005 06/04/2012

	Rates	Fringes
Line Construction		
Groundman/Driver.....	\$ 26.24	11.56
Journeyman Signal Tech, Communications Tech, Tower Tech & Fiber Optic Splicers.	\$ 35.58	13.97
Journeyman Specialist.....	\$ 40.92	15.34
Operator A.....	\$ 30.16	12.57
Operator B.....	\$ 28.19	12.06

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 06/01/2012

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWE, 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.....	\$ 42.62	19.95
GROUP 2.....	\$ 43.62	19.95
GROUP 3.....	\$ 41.12	19.95
GROUP 4.....	\$ 42.12	19.95
GROUP 5.....	\$ 39.62	19.95
GROUP 6.....	\$ 40.62	19.95
GROUP 7.....	\$ 39.35	19.95
GROUP 8.....	\$ 40.35	19.95

GROUP 9.....	\$ 38.90	19.95
GROUP 10.....	\$ 39.90	19.95
GROUP 11.....	\$ 38.17	19.95
GROUP 12.....	\$ 39.17	19.95
GROUP 13.....	\$ 37.81	19.95
GROUP 14.....	\$ 38.81	19.95
GROUP 15.....	\$ 37.17	19.95
GROUP 16.....	\$ 35.47	19.95
GROUP 17.....	\$ 30.36	19.95
GROUP 18.....	\$ 28.95	19.95

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 07/01/2012

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	\$ 29.34	20.20
GROUP 2	\$ 29.09	20.20
GROUP 3	\$ 28.59	20.20
GROUP 4	\$ 23.49	20.20
GROUP 5	\$ 21.84	20.20
GROUP 6	\$ 19.24	20.20
AREA 2		
GROUP 1	\$ 29.34	20.20
GROUP 2	\$ 29.09	20.20
GROUP 3	\$ 28.09	20.20
GROUP 4	\$ 23.19	20.20
GROUP 5	\$ 21.54	20.20
GROUP 6	\$ 18.74	20.20

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 09/01/2012

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

AREA 2: ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, EATON, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, HILLSDALE, HURON, INGHAM, IONIA, IOSCO, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, LENAWEE, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

Rates Fringes

OPERATOR: Power Equipment
(Undrground construction
(including sewer)

AREA 1:		
GROUP 1	\$ 29.98	20.25
GROUP 2	\$ 25.25	20.25
GROUP 3	\$ 24.52	20.25
GROUP 4	\$ 23.95	20.25
AREA 2:		
GROUP 1	\$ 28.27	20.25
GROUP 2	\$ 23.38	20.25
GROUP 3	\$ 22.88	20.25
GROUP 4	\$ 22.60	20.25

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

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); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; 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); End dump operator; Sweeper (Wayne type); Water wagon and Extend-a boom forklift

 ENGI0324-006 06/01/2012

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW 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, 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)

	Rates	Fringes
AREA 1		
GROUP 1.....	\$ 29.11	20.25
GROUP 2.....	\$ 22.38	20.25
GROUP 3.....	\$ 23.68	20.25
GROUP 4.....	\$ 21.82	20.25
GROUP 5.....	\$ 21.65	20.25
AREA 2		
GROUP 1.....	\$ 29.11	20.25
GROUP 2.....	\$ 22.23	20.25
GROUP 3.....	\$ 23.53	20.25
GROUP 4.....	\$ 21.67	20.25
GROUP 5.....	\$ 21.35	20.25

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

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); Vacuum truck operator; Batch plant (concrete dry batch)

GROUP 3: Grease Truck

GROUP 4: Air compressor operator (600 cu. ft. per min or more); Air compressor operator (two or more, less than 600 cfm); Wagon drill operator; Concrete breaker; Tractor operator (farm type with attachment)

GROUP 5: Boiler fire tender; Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Grader operator (self-propelled fine-grade or form (concrete)); Finishing machine operator (concrete); Boom or winch hoist truck operator; Endloader operator (under 1 yd. capacity); Roller operator (other than asphalt); Curing equipment operator (self-propelled); Concrete saw operator (40 h.p. or over); Power bin operator; Plant drier operator (asphalt); Vibratory compaction equipment operator (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); Tractor operator (farm type); End dump; Skid steer

 ENGI0324-007 05/01/2012

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.....	\$ 24.03	19.95
Crane operator, main boom & jib 120' or longer.....	\$ 27.78	19.95
Crane operator, main boom & jib 140' or longer.....	\$ 28.03	19.95
Crane operator, main boom & jib 220' or longer.....	\$ 28.28	19.95
Mechanic with truck and tools.....	\$ 28.78	19.95
Oiler and fireman.....	\$ 22.73	19.95
Regular operator.....	\$ 27.28	19.95

 ENGI0324-008 10/01/2012

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.....	\$ 29.65	12.39
GROUP 2.....	\$ 28.12	12.39

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

ENGI0325-010 05/01/2012

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

	Rates	Fringes
OPERATOR: Power Equipment (Underground Construction)		
Crane operator, main boom & jib 120' or longer.....	\$ 27.38	19.95
Crane operator, main boom & jib 140' or longer.....	\$ 27.63	19.95
Crane operator, main boom & jib 220' or longer.....	\$ 27.88	19.95
GROUP 1.....	\$ 26.88	19.95
GROUP 2.....	\$ 23.63	19.95
GROUP 3.....	\$ 23.05	19.95
GROUP 4.....	\$ 22.11	19.95
Mechanic with truck and tools.....	\$ 28.38	19.95

FOOTNOTES: Swing boom truck operator over 15 tons: \$.50 per hour additional. Hydraulic crane operator 75 tons and under: \$.75 per hour additional. Hydraulic crane operator over 75 tons: \$1.00 per hour additional. Lattice boom crane operator: \$1.50 per hour additional. Crusher pit, shafts and tunnel workers: \$2.00 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Regular equipment operator, crane, dozer, front end loader, job mechanic, pumpcrete and squeezeconcrete, concrete pump, excavator, milling and pulverizing machines, scraper (self-propelled and tractor drawn), welder

GROUP 2: Air track drill, boom truck (non-swing), concrete mixer, material hoist and tugger, pump 6" and over, beltcrete, sweeping machine, trencher, winches, well points and freeze systems

GROUP 3: Air compressor, conveyor, concrete saw, farm tractor (without attachments), fork truck, generator, guard post driver, mulching machine, pumps under 6-in., welding machine and grease person

GROUP 4: Oiler, fire tender, heater operator, brock concrete breaker, elevators (other than passenger), end dumps and skid steer

Crane Operator with main boom and jib 300' or longer shall be paid an additional one dollar and fifty cents (\$1.50) per

hour above the 220' of boom and jib wage rate.

Crane Operator with main boom and jib 400' or longer shall be paid an additional one dollar and fifty cents (\$1.50) per hour above the 300 foot of boom wage rate (\$3.00)

ENGI0325-011 10/01/2011

AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW 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, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, 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, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
Power equipment operators - hazardous waste removal: (AREA 1)		
AREA 1: LEVEL A		
Engineer when operating crane with boom and jib or leads 140' or longer....	\$ 34.68	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....	\$ 34.98	19.70
GROUP 1.....	\$ 32.03	19.70
GROUP 2.....	\$ 27.80	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....	\$ 33.00	19.70
AREA 1: LEVEL B AND C		
Engineer when operating crane with boom and jib or leads 140' or longer....	\$ 33.73	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....	\$ 34.03	19.70
GROUP 1.....	\$ 31.08	19.70
GROUP 2.....	\$ 26.85	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....	\$ 32.05	19.70
AREA 1: LEVEL D WHEN CAPPING LANDFILL		
Engineer when operating crane with boom and jib or leads 140' or longer....	\$ 32.18	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....	\$ 32.48	19.70
GROUP 1.....	\$ 29.53	19.70
GROUP 2.....	\$ 25.30	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....	\$ 29.88	19.70
AREA 1: LEVEL D		
Engineer when operating crane with boom and jib or leads 140' or longer....	\$ 32.43	19.70
Engineer when operating		

crane with boom and jib or leads 220' or longer....\$	32.73	19.70
GROUP 1.....\$	29.78	19.70
GROUP 2.....\$	25.55	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$	30.75	19.70
Power equipment operators - hazardous waste removal: (AREA 2)		
AREA 2: LEVEL A		
Engineer when operating crane with boom and jib or leads 140' or longer....\$	32.97	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....\$	33.27	19.70
GROUP 1.....\$	30.32	19.70
GROUP 2.....\$	25.92	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$	31.29	19.70
AREA 2: LEVEL B AND C		
Engineer when operating crane with boom and jib or leads 140' or longer....\$	31.91	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....\$	32.23	19.70
GROUP 1.....\$	29.37	19.70
GROUP 2.....\$	24.98	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$	30.34	19.70
AREA 2: LEVEL D WHEN CAPPING LANDFILL		
Engineer when operating crane with boom and jib or leads 140' or longer....\$	30.47	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....\$	30.77	19.70
GROUP 1.....\$	27.82	19.70
GROUP 2.....\$	23.43	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$	28.79	19.70
AREA 2: LEVEL D		
Engineer when operating crane with boom and jib or leads 140' or longer....\$	30.72	19.70
Engineer when operating crane with boom and jib or leads 220' or longer....\$	31.02	19.70
GROUP 1.....\$	28.07	19.70
GROUP 2.....\$	23.68	19.70
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator, power shovel operator.....\$	29.04	19.70

HAZARDOUS WASTE REMOVAL CLASSIFICATIONS

Group 1: Backhoe, batch plant operator, clamshell, concrete breaker when attached to hoe, concrete cleaning decontamination machine operator, concrete pump, concrete paver, crusher, dozer, elevating grader, endloader, farm tractor (90 h.p. and higher), gradall, grader, heavy

equipment robotics operator, loader, pug mill, pumpcrete machines, pump trucks, roller, scraper (self-propelled or tractor drawn), side boom tractor, slip form paver, slope paver, trencher, ultra high pressure waterjet cutting tool system, vactor, vacuum blasting machine operator, vertical lifting hoist, vibrating compaction equipment (self-propelled), well drilling rig and hydro excavator

GROUP 2: Air compressor, concrete breaker when not attached to hoe, elevator, end dumps, equipment decontamination operator, farm tractor (less than 90 h.p.), forklift, generator, heater, mulcher, pigs (portable reagent storage tanks), power screens, pumps (water), stationary compressed air plant, sweeper, welding machine and water wagon

 ENGI0325-012 05/01/2012

AREA 1: MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW 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, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
AREA 1		
GROUP 1.....	\$ 26.68	20.20
GROUP 2.....	\$ 26.55	20.20
GROUP 3.....	\$ 25.42	20.20
GROUP 4.....	\$ 24.85	20.20
AREA 2		
GROUP 1.....	\$ 25.77	20.20
GROUP 2-A.....	\$ 25.67	20.20
GROUP 2-B.....	\$ 25.45	20.20
GROUP 3.....	\$ 24.67	20.20
GROUP 4.....	\$ 24.17	20.20

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.

AREA 1:

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).

GROUP 3: 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 4: Oiler, hydraulic pipe pushing machine, grease person

and hydrostatic testing operator.

AREA 2:

GROUP 1: Mechanic, crane (over 1/2 yd. capacity), backhoe (over 1/2 yd. capacity), grader (Caterpillar 12 equivalent or larger)

GROUP 2-A: Trencher(except service), backhoe (1/2 yd. capacity or less)

GROUP 2-B: Crane (1/2 yd. capacity or less), compressor (2 or more), dozer (D-4 equivalent or larger), endloader (1 yd. capacity or larger), pump (1 or 2 six-inch or larger), side boom (D-4 equivalent or larger)

GROUP 3: Backfiller, boom truck (powered), concrete saw (20 hp or larger), dozer (less than D-4 equivalent), endloader (under 1 yd. capacity), farm tractor (with attachments), pump (2 - 4 under six-inch capacity), side boom tractor(less than D-4 equivalent), tamper (self-propelled), trencher service and grader maintenance

GROUP 4: Oiler, grease person and hydrostatic testing operator

IRON0008-007 07/01/2012

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.....	\$ 25.60	22.67
General contracts less than \$10,000,000.....	\$ 22.51	22.67

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

IRON0025-002 06/04/2012

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).	\$ 22.17	20.13
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...	\$ 23.39	21.13
IRONWORKER		
Ornamental and Structural...	\$ 33.29	25.34
Reinforcing.....	\$ 28.74	23.35

IRON0055-005 07/01/2012

LENAWEE AND MONROE COUNTIES:

	Rates	Fringes
IRONWORKER		
Pre-engineered metal buildings.....	\$ 23.59	18.95
All other work.....	\$ 28.32	18.95

IRON0292-003 06/01/2012

BERRIEN AND CASS COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector).....	\$ 26.38	17.91

IRON0340-001 06/01/2012

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).....	\$ 20.68	23.32

LABO0005-006 10/01/2012

	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.....	\$ 18.62	12.17
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D.....	\$ 17.62	12.17
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.....	\$ 23.55	12.20
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D.....	\$ 22.55	12.20
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.....\$ 20.33 12.17
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 19.33 12.17

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.....\$ 21.31 12.17
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 20.31 12.17

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.....\$ 22.21 12.17
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 21.21 12.17

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

Levels A, B or C.....\$ 23.31 12.21
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 22.31 12.21

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

Levels A, B or C.....\$ 21.92 11.99
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 20.92 11.99

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.....\$ 28.19 13.13
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....\$ 27.19 13.13

Laborers - hazardous waste
abatement: (MACOMB AND WAYNE
COUNTIES - Zone 1)

Levels A, B or C.....\$ 27.34 15.92
Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$	26.34	15.92
Laborers - hazardous waste abatement: (MONROE COUNTY - Zone 4)		
Levels A, B or C.....\$	29.35	13.49
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....\$	28.35	13.49
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.....\$	27.34	15.92
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....\$	26.34	15.92
Laborers - hazardous waste abatement: (SANILAC AND ST. CLAIR COUNTIES - Zone 5)		
Levels A, B or C.....\$	24.83	14.61
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....\$	23.83	14.61

* LABO0259-001 09/01/2012

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.....\$	21.37	15.53
GROUP 2.....\$	21.48	15.53
GROUP 3.....\$	21.54	15.53
GROUP 4.....\$	21.72	15.53
GROUP 5.....\$	21.97	15.53
GROUP 6.....\$	22.30	15.53
GROUP 7.....\$	15.58	15.53
AREA 2		
GROUP 1.....\$	22.43	12.17
GROUP 2.....\$	22.52	12.17
GROUP 3.....\$	22.62	12.17
GROUP 4.....\$	22.78	12.17
GROUP 5.....\$	23.04	12.17
GROUP 6.....\$	23.35	12.17
GROUP 7.....\$	15.62	12.17

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, aquifers, 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, guniting, 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 09/01/2012

	Rates	Fringes
Laborers - open cut:		
ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES:		
GROUP 1.....	\$ 21.22	15.53
GROUP 2.....	\$ 21.33	15.53
GROUP 3.....	\$ 21.38	15.53
GROUP 4.....	\$ 21.46	15.53
GROUP 5.....	\$ 21.52	15.53
GROUP 6.....	\$ 18.97	15.53
GROUP 7.....	\$ 15.59	15.53
ZONE 2 - LIVINGSTON COUNTY (east of M-151 (Oak Grove Rd.)); MONROE AND WASHTEENAW COUNTIES:		
GROUP 1.....	\$ 22.08	12.17
GROUP 2.....	\$ 22.19	12.17
GROUP 3.....	\$ 22.31	12.17
GROUP 4.....	\$ 22.38	12.17
GROUP 5.....	\$ 22.53	12.17
GROUP 6.....	\$ 19.83	12.17
GROUP 7.....	\$ 16.47	12.17
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.....	\$ 20.27	12.17
GROUP 2.....	\$ 20.41	12.17
GROUP 3.....	\$ 20.53	12.17
GROUP 4.....	\$ 20.58	12.17
GROUP 5.....	\$ 20.72	12.17
GROUP 6.....	\$ 18.02	12.17
GROUP 7.....	\$ 15.17	12.17
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, OSTEGO,
 OTTAWA, PRESQUE ISLE,
 ROSCOMMON, SAGINAW, ST.
 JOSEPH, TUSCOLA, VAN BUREN
 AND WEXFORD COUNTIES:

GROUP 1.....	\$ 19.28	12.17
GROUP 2.....	\$ 19.41	12.17
GROUP 3.....	\$ 19.52	12.17
GROUP 4.....	\$ 19.59	12.17
GROUP 5.....	\$ 19.71	12.17
GROUP 6.....	\$ 16.93	12.17
GROUP 7.....	\$ 15.27	12.17

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

GROUP 1.....	\$ 19.49	12.17
GROUP 2.....	\$ 19.63	12.17
GROUP 3.....	\$ 19.76	12.17
GROUP 4.....	\$ 19.81	12.17
GROUP 5.....	\$ 19.86	12.17
GROUP 6.....	\$ 17.24	12.17
GROUP 7.....	\$ 15.35	12.17

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.

LAB00465-001 06/01/2012

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.....	\$ 24.89	12.17
GROUP 2.....	\$ 25.02	12.17
GROUP 3.....	\$ 25.20	12.17
GROUP 4.....	\$ 25.28	12.17
GROUP 5.....	\$ 25.49	12.17
GROUP 6.....	\$ 25.79	12.17
LABORER (AREA 2)		
GROUP 1.....	\$ 22.89	12.17
GROUP 2.....	\$ 23.09	12.17
GROUP 3.....	\$ 23.33	12.17
GROUP 4.....	\$ 23.68	12.17
GROUP 5.....	\$ 23.55	12.17
GROUP 6.....	\$ 23.89	12.17
LABORER (AREA 3)		
GROUP 1.....	\$ 22.14	12.17
GROUP 2.....	\$ 22.35	12.17
GROUP 3.....	\$ 22.64	12.17
GROUP 4.....	\$ 23.08	12.17
GROUP 5.....	\$ 22.70	12.17
GROUP 6.....	\$ 23.13	12.17
LABORER (AREA 4)		
GROUP 1.....	\$ 22.14	12.17
GROUP 2.....	\$ 22.35	12.17
GROUP 3.....	\$ 22.64	12.17
GROUP 4.....	\$ 23.08	12.17
GROUP 5.....	\$ 22.70	12.17
GROUP 6.....	\$ 23.13	12.17

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.

LAB01076-005 04/01/2012

MICHIGAN STATEWIDE

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1.....	\$ 18.28	12.07
Zone 2.....	\$ 16.85	12.07
Zone 3.....	\$ 15.08	12.07
Zone 4.....	\$ 14.45	12.07
Zone 5.....	\$ 14.45	12.07

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 06/01/2012

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

	Rates	Fringes
PAINTER		
Brush and roller.....	\$ 21.05	11.89
Spray, Sandblast, Sign		
Painting.....	\$ 22.25	11.89

 PAIN0845-003 06/01/2011

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.....	\$ 20.74	11.50

 PAIN0845-015 06/01/2011

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.....	\$ 20.74	11.50

 PAIN0845-018 06/01/2011

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.....	\$ 20.74	11.50

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

 PAIN1011-003 06/17/2012

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

	Rates	Fringes
PAINTER.....	\$ 24.00	9.56

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 07/23/2012

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.....	\$ 22.85	12.30
All other work, including		

maintenance of industrial
 plant.....\$ 21.78 10.75

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 06/01/2012

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

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGO, 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, OSTEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1.....	\$ 29.03	12.05
ZONE 2.....	\$ 27.53	12.05

 PLUM0190-003 05/01/2010

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.....	\$ 27.68	18.29
All other work:.....	\$ 20.72	11.15

 SUMI2002-001 05/01/2002

	Rates	Fringes
Flag Person.....	\$ 7.25	
LINE PROTECTOR (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)....	\$ 18.98	9.57
LINE PROTECTOR (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE).....	\$ 17.14	10.02
Pavement Marking Machine (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW		

AND WAYNE COUNTIES)		
Group 1.....	\$ 23.72	9.57
Pavement Marking Machine (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)		
Group 2.....	\$ 21.35	9.57
Pavement Marking Machine (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES)		
Group 1.....	\$ 21.42	10.02
Pavement Marking Machine (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)		
Group 2.....	\$ 19.28	10.02

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.

TEAM0007-004 06/01/2012

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGO, 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, OSTEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASEE, 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.....	\$ 24.795	.50 + a+b
Trucks under 8 cu. yds.....	\$ 24.895	.50 + a+b
Trucks, 8 cu. yds. and over.....	\$ 25.045	.50 + a+b
AREA 2		
Euclids, double bottomms and lowboys.....	\$ 24.895	.50 + a+b
Trucks under 8 cu. yds.....	\$ 24.995	.50 + a+b
Trucks, 8 cu. yds. and over.....	\$ 25.145	.50 + a+b

Footnote:
a. \$351.00 per week
b. \$49.90 daily

TEAM0247-004 06/01/2004

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGO, 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, OSTEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

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

	Rates	Fringes
Sign Installer		
AREA 1		
GROUP 1.....	\$ 20.18	.15 + a
GROUP 2.....	\$ 19.93	.15 + a
AREA 2		
GROUP 1.....	\$ 21.73	.15 + a
GROUP 2.....	\$ 21.48	.15 + a

FOOTNOTE:

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

SIGN INSTALLER CLASSIFICATION:S

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 04/29/2012

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.....	\$ 21.97329.50/wk+52.90/day	
GROUP 2.....	\$ 22.06329.50/wk+52.90/day	
GROUP 3.....	\$ 22.27329.50/wk+52.90/day	
AREA 2		
GROUP 1.....	\$ 22.27329.50/wk+52.90/day	
GROUP 2.....	\$ 22.41329.50/wk+52.90/day	
GROUP 3.....	\$ 22.60329.50/wk+52.90/day	

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

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

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 union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows 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. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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.

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END OF GENERAL DECISION

29 CFR Part 5 – Labor Standards Provisions for Federally Assisted Projects

§ 5.5 Contract provisions and related matters.

(a) The Agency head shall cause or require the contracting officer to insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in Sec. 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

(1) *Minimum wages.* (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) *Withholding.* The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of

1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) *Payrolls and basic records.* (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) *Apprentices and trainees--(i) Apprentices.* Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its

program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) *Trainees*. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) *Equal employment opportunity*. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) *Compliance with Copeland Act requirements*. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) *Subcontracts*. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) *Compliance with Davis-Bacon and Related Act requirements.* All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) *Disputes concerning labor standards.* Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) *Certification of eligibility.* (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) *Contract Work Hours and Safety Standards Act.* The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible there for shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

Disadvantaged Business Enterprises (DBE)

Prime contractors bidding on this project must follow, document, and maintain documentation of their Good Faith Efforts, as listed below, to ensure that Disadvantaged Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach. Bidders must make the following Good Faith Efforts for any work that will be subcontracted.

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting DBEs whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
3. Consider in the contracting process whether firms competing for large contracts could be subcontracted with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one DBE firm to handle individually.
5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce.

Subsequent to compliance with the Good Faith Efforts, the following conditions also apply under the DBE requirements. Completed Good Faith Efforts Worksheets (Attachment 1), along with the required supporting documentation outlined in the instructions, must be submitted with your bid proposal.

1. The prime contractor must pay its subcontractor for work that has been satisfactorily completed no more than 30 days from the prime contractor's receipt of payment from the owner.
2. The prime contractor must notify the owner in writing prior to the termination of any DBE subcontractor for convenience by the prime contractor.
3. If a DBE contractor fails to complete work under the subcontract for any reason, the prime contractor must employ the Good Faith Efforts if soliciting a replacement contractor.
4. The prime contractor must employ the Good Faith Efforts.

Debarment Certification

The prime contractor must provide a completed **Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form** with its bid or proposal package to the owner (Attachment 2).

Attachment 1

**Disadvantaged Business Enterprise (DBE) Utilization
GOOD FAITH EFFORTS WORKSHEET**

**Michigan Department of Environmental Quality
Resource Management Division – Revolving Loan Section
Disadvantaged Business Enterprise (DBE) Utilization
State Revolving Fund/Drinking Water Revolving Fund
GOOD FAITH EFFORTS WORKSHEET**

Bidder: _____

Subcontract Area of Work: _____

Contract Goal: Solicit a minimum of three (3) DBEs via email/letters/fax.

List the DBEs contacted for the above area of work and complete the following information for each DBE.

Company Name	Type of Contact	Date of Contact	Price Quote Received	Accepted/ Rejected	Please Explain if Rejected
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	

Explanation for Not Achieving Minimum Contacts (attach extra sheets if necessary):

MITA DBE Posting Date (if applicable): _____
(attach a copy of the DBE advertisement)

Other Efforts (attach extra sheets if necessary):

Please include the completed worksheet and supporting documentation with the bid proposal.

Rev.7-2012

Rick Snyder, Governor



Dan Wyant, Director

**Michigan Department of Environmental Quality
Resource Management Division – Revolving Loan Section
Disadvantaged Business Enterprise (DBE) Utilization
State Revolving Fund/Drinking Water Revolving Fund
GOOD FAITH EFFORTS WORKSHEET**

Instructions to Bidders for the Completion of the Good Faith Efforts Worksheet

1. Separate worksheets must be provided for each area of work to be subcontracted out. This includes both major and minor subcontracts.
2. A minimum of three (3) DBEs must be contacted by a verifiable means of communication such as e-mail, letter, or fax for each area of work to be subcontracted out. Copies of the solicitation letters/e-mails and fax confirmation sheets must be provided with the worksheet.
3. If this minimum number cannot be achieved with local DBEs, then the solicitations must be sent to DBEs outside of the local area (i.e. statewide).
4. Posting solicitations for quotes/proposals from DBEs on the MITA website (www.mitadbe.com) is highly recommended to facilitate participation in the competitive process whenever possible. The solicitation needs to identify the project and the areas of work to be subcontracted out. A copy of the MITA DBE advertisement must be submitted with the worksheet, if used, or a printout of the resulting quotes posted to the MITA website can be submitted with this form as supporting documentation.
5. If the area of work is so specialized that no DBEs exist, then an explanation is required to support that conclusion.
6. The date of the DBE contact must be identified, as it is important to document that the DBE solicitation was made during the bidding period and that sufficient time was given for the DBE to return a quote.
7. Each DBE firm's price quote must be identified if one was received or N/A entered on the worksheet if a quote was not received. Copies of all quotes must be submitted with the worksheet.
8. If a quote was received, indicate if it was accepted or rejected. Justification for not accepting a quote and not using the DBE subcontractor must be provided.
9. Under Other Efforts, please indicate additional steps you have taken to obtain DBE contractors and provide the appropriate supporting documentation such as:
 - Follow-up e-mails, faxes, or letters.
 - Copies of announcements/postings in newspapers, trade publications, or minority media that target DBE firms.

Rev. 7-2012

Rick Snyder, Governor



Dan Wyant, Director

Attachment 2

***Certification Regarding
Debarment, Suspension, and Other Responsibility Matters***

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters**

The prospective participant certifies, to the best of its knowledge and belief, that it and its principals:

- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under federal nonprocurement programs by any federal department or agency;
- (2) Have not, within the three year period preceding the proposal, had one or more public transactions (federal, state, or local) terminated for cause or default; and
- (3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:
 - (a) For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local) or a procurement contract under such a public transaction;
 - (b) For the violation of federal or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or
 - (c) For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to five years, or both.

Name and Title of Authorized Representative

Name of Participant Agency or Firm

Signature of Authorized Representative

Date

I am unable to certify to the above statement. Attached is my explanation.

Attachment 3

***Frequently Asked Questions About
Disadvantaged Business Enterprise (DBE) Solicitation***

Disadvantaged Business Enterprise (DBE) Requirements Frequently Asked Questions Regarding Contractor Compliance

Q: What is the Good Faith Efforts Worksheet form and how is it to be completed?

A: This form captures efforts by the prime contractor to solicit DBEs for each area of work type that will be subcontracted out. A separate Good Faith Efforts Worksheet must be provided by the prime contractor for each area of work type to be subcontracted out. There are specific instructions that accompany this form that prescribe minimum efforts which bidders must make in order to be in compliance with the DBE requirements.

Q: Can non-certified DBEs be used?

A: While non-certified DBEs can be used, only DBEs, MBEs, and WBEs that are certified by EPA, SBA, or MDOT (or by tribal, state and local governments, as long as their standards for certification meet or exceed the standards in EPA policy) can be counted toward the fair share goal. Proof of certification by one of these recognized and approved agencies should be sought from each DBE.

Q: How does a DBE get certified?

A: Applications for certification under MDOT can be found at <http://mdot270.state.mi.us:8080/UCP/FormsServlet>.

Applications for certification under EPA can be found on EPA's Small Business Programs website at <http://www.epa.gov/osbp/grants.htm> under Certification Forms.

Q: If a bidder follows the MDOT DBE requirements, will the bidder be in compliance with the SRF/DWRF DBE requirements?

A: No. Federally funded highway projects utilize DBE goals, which require that a certain percentage of work be performed by DBE subcontractors. For SRF/DWRF projects, there is no financial goal. However, there is a solicitation effort goal. Bidders must use Good Faith Efforts for each and every area of work to be subcontracted out to obtain DBEs. The bidders are not required to use DBEs if the quotes are higher than non-DBE subcontractors. **There is no required DBE participation percentage contract goal for the SRF/DWRF.**


Q: Must the Good Faith Efforts Worksheet and supporting documentation be turned in with the bid proposals?





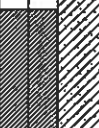
A: Yes. This is a requirement to document that the contractor has complied with the DBE requirements and the five Good Faith Efforts. These compliance efforts must be done during the bidding phase and not after-the-fact. It is highly recommended that the need for these efforts and the submittal of the forms with the bid proposals be emphasized at the pre-bid meetings. Failure to show that the five Good Faith Efforts were complied with during the bidding process can lead to a prime contractor being found non-responsive.

- Q:** What kinds of documentation should a contractor provide to document solicitation efforts?
- A:** Documentation can include fax confirmation sheets, copies of solicitation letters/e-mails, printouts of online solicitations, printouts of online search results, affidavits of publication in newspapers, etc.
- Q:** How much time will compliance with the Good Faith Efforts require in terms of structuring an adequate bidding period?
- A:** Due to the extent of the efforts required, a minimum of 30 calendar days is recommended between bid posting and bid opening to ensure adequate time for contractors to locate certified DBEs and solicit quotes.
- Q:** How does a contractor locate certified DBEs?
- A:** The Michigan Department of Transportation has a directory of all Michigan certified entities located at <http://mdot270.state.mi.us:8080/UCP/HomePageServlet>. Additionally, the Central Contractor Registration (CCR) database is another place to search and can be found at www.ccr.gov
- Q:** If the bidder does not intend to subcontract any work, what forms, if any, must be provided with the bid proposal?
- A:** The bidder should complete the Good Faith Efforts Worksheet with a notation that no subcontracting will be done. However, if the bidder is awarded the contract and then decides to subcontract work at any point, then the Good Faith Efforts must be made to solicit DBEs.
- Q:** In the perfect world, the Good Faith Efforts Worksheet is required to be turned in with the proposal. What if no forms are turned in with the bid proposal or forms are blank or incomplete? Should this be cause to determine that the bidder is non-responsive?
- A:** While the Good Faith Efforts Worksheet is important, it is more critical to confirm that the contractor complied with the DBE requirements prior to bid opening. The owner should contact the bidder as soon as deficiencies are noted for a determination/documentation of efforts taken to comply with the DBE requirements. Immediate submittal of the completed forms will be acceptable provided the Good Faith Efforts were made and it is just a matter of transferring information to the forms.
- Q:** If the prime contractor is a DBE, does he have to solicit DBE subcontractors?
- A:** Yes, the DBE requirements still apply if the prime intends to subcontract work out. Good Faith Efforts must be used to solicit DBEs.
- Q:** If the area of work is one where there are less than three DBE contractors, how is the contractor to document this?
- A:** Copies of printouts from MDOT and CCR showing no DBEs and advertisements soliciting quotes for all subcontract areas, including the questionable areas, will be adequate.


Appendix C

Soil Borings

Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-1	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
				Surface Elevation:							
1PC				4.0" ASPHALT PAVEMENT							
				7.3" CONCRETE PAVEMENT; Reinforcement 3.6" from top of pavement							
				6.5" CLAYEY SAND BASE, some gravel and organics, dark gray to black							
2SS				SANDY CLAY (CL) - brown, occasional seams of light brown fine sand, moist, stiff	6	18					<input checked="" type="checkbox"/>
						2,3,3,3					
3SS					7	19					<input checked="" type="checkbox"/>
						5					<input type="checkbox"/> 1.5
						2,3,4					
				END OF BORING							
				<u>Boring Location</u> East Bound W. Madison Street 8.5' North of Curb, 55' East of SB Ashley Street Centerline, Across from #115 W. Madison Street							

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		







Client: City of Ann Arbor	PSI Project #: 381-85088	Boring Log Number: C-2	 Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
				Surface Elevation:							
1PC				1.9" ASPHALT PAVEMENT 7.6" CONCRETE PAVEMENT; Reinforcement 2.2" from top of pavement							
2SS				8.5" SILTY SAND BASE, fine to coarse, with gravel, dark brown FILL - CLAYEY SAND, few gravel, organics and brick fragments, brown and dark brown, moist L.O.I. = 3.3%	6	11	2,3,3,4				⊗
3SS				SANDY CLAY (CL) - mottled brown, yellowish brown and light brown, moist, stiff	6	18	2,2,4				⊗ 1.5
				END OF BORING							
				<u>Boring Location</u> West Bound W. Madison Street 9' South of Curb; 68' West of NB Ashley Street Centerline							


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008	Completed: 9/4/2008	Engineer: JDH	
	Drilling Method: 3.25" HSA		Office: Plymouth	
	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 5.5	Approved:
	Note: Boring backfilled with soil unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-3	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
Surface Elevation:											
1PC				1.9" ASPHALT PAVEMENT							
				6.7" CONCRETE PAVEMENT; Reinforcement 2.4" from top of pavement							
2SS				9.5" SILTY SAND BASE, fine to coarse, some gravel, dark brown	7		13				⊗
				FILL - CLAYEY SAND, some gravel and organics, dark brown, moist L.O.I. = 3.5%	3.3, 4, 4						
3SS				SANDY CLAY (CL) - few gravel and seams of silty sand, mottled brown, yellowish brown and gray, moist, medium stiff	5	4	21				⊗ 10*
					1.2, 2						
END OF BORING											
<u>Boring Location</u> East Bound W. Madison Street 9.5' North of Curb; 92' East of S. First Street Centerline, Across from Driveway to #213 W. Madison Street											


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		

Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-4	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
				Surface Elevation:							
1PC			1.8" ASPHALT PAVEMENT								
			7.9" CONCRETE PAVEMENT; Reinforcement 3" from top of pavement, few horizontal partings								
2SS			5.5" SILTY SAND BASE, few gravel, some organics, dark gray L.O.I. = 3.6%		6	12					⊗
			SILTY, CLAYEY SAND (SC-SM) - few gravel, brown and dark reddish brown, moist, loose		2.3, 3.5						
			SAND (SP) - fine to coarse, some gravel, brown and light brown, moist, medium dense								
3SS			END OF BORING		5	22	8				⊗
			Boring Location		4.7, 15						
			West Bound W. Madison Street 7' South of Curb; 115' West of South First Street								


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008	Engineer: JDH
	Drilling Method: 3.25" HSA	Office: Plymouth
	Driller: M. Dubnicki Drill Rig: CME-75	Hole Depth (ft): 5.5
Approved: 		
Note: Boring backfilled with soil unless otherwise noted.		




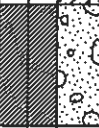
Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-5	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf)
				Surface Elevation:							
1PC			1.3" ASPHALT PAVEMENT								
			1.5" SAND AND GRAVEL								
2SS			4.5" CONCRETE PAVEMENT recovered*; Reinforcement 3.1" from top of pavement, few wavy horizontal partings		13	7					⊗
			4.5" SILTY SAND BASE, some gravel and clay, dark brown		5.7, 6.6						
			SAND (SP) - fine to coarse, some gravel, brown, moist, medium dense								
3SS					5	14	7				⊗
					3.5.9						
				END OF BORING							
				*Core not intact, broken at bottom.							
				<u>Boring Location</u>							
				East Bound W. Madison Street 5.5' North of Curb; 144' West of Second Street, Across from #409 W. Madison Street							


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008	Engineer: JDH
	Drilling Method: 3.25" HSA	Office: Plymouth
	Driller: M. Dubnicki Drill Rig: CME-75	Hole Depth (ft): 5.5
Approved: 		
Note: Boring backfilled with soil unless otherwise noted.		

Client: City of Ann Arbor	PSI Project #: 381-85088	Boring Log Number: C-6	 <i>Professional Service Industries, Inc.</i>
	Sheet: 1 of 1		
Project: 2009 Construction Projects West Madison Street, Seventh to Main		Location: City of Ann Arbor, Michigan	

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
Surface Elevation:											
1PC				2.1" ASPHALT PAVEMENT							
				7.0" CONCRETE PAVEMENT recovered*; No Reinforcement. Few wavy horizontal partings.							
2SS				9" SILTY SAND BASE, fine to coarse, some gravel, dark brown SILTY, CLAYEY SAND (SC-SM) - reddish brown, few gravel and seams of light brown fine sand, moist, loose	8	8					⊗
					3.4, 4.6						
3SS				SAND (SP) - fine to coarse, brown, some gravel and seams of reddish brown silty sand, moist, loose	5	4	7				⊗
					3.2, 2.2						
END OF BORING				*Core not intact, broken at top.							
<u>Boring Location</u>				West Bound W. Madison Street 8.5' South of Curb; 196' East of Fourth Street Centerline							

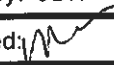
Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.


<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		




Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-7	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
Surface Elevation:											
1PC				2.7" ASPHALT PAVEMENT							
				8.0" CONCRETE PAVEMENT recovered*; No Reinforcement, few wavy horizontal partings							
				5" SILTY SAND BASE, fine to medium, some gravel, dark brown							
2SS				CLAYEY SAND (SC) - few gravel, mottled brown, moist, medium dense	15	9					⊗
					5.7, 8.7						
3SS				CLAYEY SAND (SC) - some gravel, olive brown and gray, moist, medium dense	12	10					⊗
					5.6, 6.6						
END OF BORING											
*Core not intact, broken in middle along horizontal partings.											
<u>Boring Location</u>											
East Bound W. Madison Street 7' North of Curb; 34' East of Fourth Street, Across from Wurster Park											


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/3/2008 Completed: 9/3/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		

Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-8	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
				Surface Elevation:						
1PC				2.4" ASPHALT PAVEMENT 6.0" CONCRETE PAVEMENT recovered*; Reinforcement 2" from bottom of pavement						
2SS				15.5" SILTY SAND BASE, fine to coarse, some gravel, dark brown	5	17				
				FILL - SILTY, CLAYEY SAND, fine to medium, few gravel, brown, dark reddish brown, seam of dark gray organics, moist, loose L.O.I. = 3.6%	2.2,3,3					
3SS				SAND (SP-SM) - fine to coarse, some gravel and silt, mottled brown, moist, medium dense	28	9				
				END OF BORING	5					
				*Core not intact, broken at top.						
				<u>Boring Location</u> West Bound W. Madison Street 7' South of Curb; 42' West of Turner Park Court Centerline, Across from #612 W. Madison Street						

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

<input type="checkbox"/> Water Level While Drilling <u>None</u> <input type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008 Completed: 9/4/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		


Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-9
Project: 2009 Construction Projects West Madison Street, Seventh to Main	Location: City of Ann Arbor, Michigan	



Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input checked="" type="checkbox"/> Calibrated Hand Penetrometer (tsf) 0 2 4 6
				Surface Elevation:							
1PC				1.8" ASPHALT PAVEMENT 7.2" CONCRETE PAVEMENT recovered*; Reinforcement 1.5" from bottom of pavement							
2SS				5" SILTY SAND BASE, fine to medium, some large gravel, brown CLAYEY SAND (SC) - some gravel, mottled brown, moist, medium dense	14	11					
					6.7.7						
3SS				SILTY CLAY (CL) - occasional seams of fine sand and silt, yellowish brown, moist, very stiff	17	17					
					5						
				END OF BORING *Core not intact, broken at top. <u>Boring Location</u> West Bound W. Madison Street 8' South of Curb; 138' West of Fifth Street Centerline, Across from #708 W. Madison Street							


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

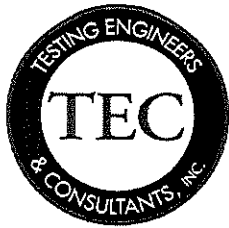
<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/4/2008	Completed: 9/4/2008	Engineer: JDH	
	Drilling Method: 3.25" HSA	Office: Plymouth		Drawn By: JDH
	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 5.5	Approved:
	Note: Boring backfilled with soil unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 381-85088 Sheet: 1 of 1	Boring Log Number: C-10	 Professional Service Industries, Inc.
Project: 2009 Construction Projects West Madison Street, Seventh to Main		Location: City of Ann Arbor, Michigan	

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)	<input checked="" type="checkbox"/> "N" Blows Per Foot 0 20 40 60 <input type="checkbox"/> Unconfined Compressive Strength (tsf) <input type="checkbox"/> Calibrated Hand Penetrometer (tsf)
				Surface Elevation:							
1PC				2.7" ASPHALT PAVEMENT 8.0" CONCRETE PAVEMENT recovered*; Reinforcement 3.4" from bottom of pavement, few horizontal wavy partings							
2SS				4" SILTY, CLAYEY SAND BASE, fine to medium, few gravel, dark brown	13	16					⊗
				SILTY, CLAYEY SAND (SC-SM) - few to some gravel, cobble, brown and reddish brown, moist, medium dense	7.6, 7.7						
3SS					5	10	16				⊗
					6.5, 5						
				END OF BORING							
				*Core not intact, broken at top and middle.							
				<u>Boring Location</u>							
				East Bound W. Madison Street 6' North of Curb; 118' West of Sixth Street Centerline							

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

<input checked="" type="checkbox"/> Water Level While Drilling <u>None</u> <input checked="" type="checkbox"/> Water Level At Completion <u>None</u> _____ After Completion	Boring Started: 9/3/2008 Completed: 9/3/2008 Drilling Method: 3.25" HSA Office: Plymouth Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 5.5	Engineer: JDH Drawn By: JDH Approved: 
Note: Boring backfilled with soil unless otherwise noted.		



Testing Engineers & Consultants, Inc.

1343 Rochester Road - PO Box 249 - Troy, Michigan - 48099-0249

(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M3A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/17/2011
		Completed: 12/17/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
0.0			2.5	ASPHALT (3")			
0.0			2.5	CONCRETE (6")			
2.5	LS	2 3 3	3	Loose Moist Dark Brown Clayey Fine SAND With Some Gravel	21.6	147	2800
5.0	LS	4 6 10	5.5	Medium Compact Moist To Wet Brown Fine SAND With Trace Of Gravel & Clayey Seams	12.4	139	
7.5	LS	3 5 5	8	Loose Moist Brown Clayey Fine SAND	15.4	129	1240
10.0	LS	4 8 15		Medium Compact Moist Brown Fine SAND With Clayey Seams	12.9	112	
12.5			12.5	Medium Compact Wet Brown Fine SAND			
15.0	LS	6 11 17			19.9	136	
20.0	LS	3 5 6			19.7	113	
22.5	LS						
			25				

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

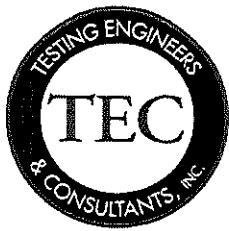
w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push

Bottom of Borehole at 25'

Water Encountered: 4'6"

At Completion: Caved At 5'4"

Boring No. M3A Madison



Testing Engineers & Consultants, Inc.

1343 Rochester Road - PO Box 249 - Troy, Michigan - 48099-0249

(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M4A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/17/2011
		Completed: 12/17/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
2.5	LS	4	.21	ASPHALT (2 1/2")	10.4	142	
		5	.83				
5.0	LS	3	3	CONCRETE (7 1/2")	7.2	146	
		6					
7.5	LS	6	6	Loose Moist Brown Fine Sand With Some Clayey Seams-FILL	8.1	142	
		6					
10.0	LS	8	6	Medium Compact Moist Brown Fine SAND With Trace Of Gravel	10.1	147	
		8					
12.5	LS	8	12	Medium Compact Moist Brown Medium SAND With Trace Of Gravel	15.5	105	
		8					
15.0	LS	10	12	Medium Compact Moist To Very Moist Brown Clayey SAND With Trace Of Gravel	13.4	126	
		10					
17.5	LS	12	17	Medium Compact Wet Brown Fine SAND With Trace Of Gravel & Clayey Seams	14.1	140	
		12					
20.0	LS	7	22	Medium Compact Wet Brown Fine SAND With Trace Of Gravel & Clayey Seams			
		7					
22.5	LS	9	22	Compact Wet Brown Fine SAND With Trace Of Gravel & Clayey Seams			
		9					
		13	25				
		18					

Bottom of Borehole at 25'

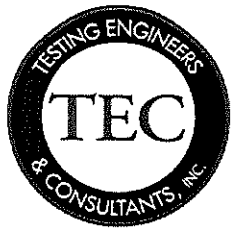
"N" - Standard Penetration Resistance
 SS - 2" J.D. Split Spoon Sample
 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

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

Water Encountered: 17'0"

At Completion: Caved At 16'0"

Boring No. M4A Madison



Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M5A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/17/2011
		Completed: 12/17/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			.42				
			.92	ASPHALT (5")			
2.5	LS	5 2 2		CONCRETE (6")	12.0	101	
			3				
	LS	3 5 6	4	Loose Wet Brown Fine SAND With Trace Of Gravel	12.5	135	
5.0				Loose Moist Brown Clayey SAND			
	LS	6 9 12		Medium Compact Moist Brown Fine SAND With Trace Of Gravel	7.2	131	
7.5							
	LS	7 11 15			6.8	141	
10.0							
	LS	7 8 11			6.6	144	
15.0							
			17				
	LS	9 12 14		Medium Compact Moist Brown Clayey Medium SAND With Trace Of Gravel	8.5	144	
20.0							
			22				
	LS	4 10 12		Medium Compact Moist To Very Moist Brown Clayey SILT	18.7	149	8650
22.5							
			25				

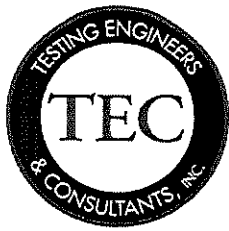
"N" - Standard Penetration Resistance
 SS - 2" .D. Split Spoon Sample
 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

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

Water Encountered: 11"

At Completion: None

Boring No. M5A Madison



Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M7A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/17/2011
		Completed: 12/17/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
0.0			19				
0.0			77				
2.5	LS	10	2	ASPHALT (2 1/4")	5.8	106	
2.5		9		CONCRETE (7")			
2.5		4		Medium Compact Moist Brown Gravelly Well Graded Sand With Some Clay-FILL	11.3	142	1070
5.0	LS	3	5.5	Loose Moist To Very Moist Brown Clayey SAND With Trace Of Gravel	8.5	131	
5.0		3					
5.0		4					
7.5	LS	9	8	Stiff Moist Brown CLAY With Some Silt & Trace Of Gravel	8.0	105	
7.5		11					
7.5		16					
10.0	LS	18		Dense Moist Brown Clayey SAND With Trace Of Gravel	6.9	106	
10.0		32					
10.0		41					
12.5			12	Hard Moist Gray CLAY With Some Silt & Trace Of Gravel	6.3	125	
15.0	LS	22			10.6	119	
15.0		54/6"					
20.0	LS	22					
20.0		23					
20.0		50/5"					
22.5	LS	52/6"					
22.5			25				

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

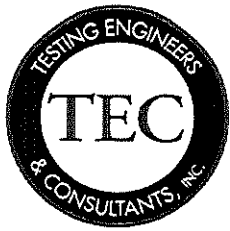
w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push

Bottom of Borehole at 25'

Water Encountered: None

At Completion: None

Boring No. M7A Madison



Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M7B Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: J. Mickle
Ground Surface Elevation:		Started: 12/19/2011
		Completed: 12/19/2011

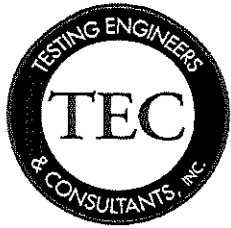
Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
2.5	LS	3 6 7	1.5	ASPHALT (3") CONCRETE (5 3/4")	15.4	147	
5.0	LS	5 6 10		Loose Moist Dark Brown Clayey Fine SAND With Some Gravel	6.7	104	
7.5	LS	7 7 12	6	Medium Compact Moist Dark Brown Medium SAND With Trace Of Gravel	18.0	121	
10.0	LS	8 13 16	8	Medium Compact Moist To Wet Brown Very Fine SAND With Clayey Seams	9.0	144	
12.5			11	Medium Compact Wet Brown Medium SAND With Trace Of Gravel			
15.0	LS	32 34 41		Hard Moist Gray CLAY With Some Silt & Trace Of Gravel	6.9	132	4450
20.0	LS	38 54/6"			6.6	136	16810
22.5	LS	52/6"			13.7	108	
			25				

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

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

Bottom of Borehole at 25'

Water Encountered: 7'0"
At Completion: 11'0"
Boring No. M7B Madison



Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G

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Boring No.: M8A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickie
Ground Surface Elevation:		Started: 12/19/2011
		Completed: 12/19/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
2.5	LS	8 10 14	1.1	ASPHALT (3 1/2")	5.6	142	
5.0	LS	12 15 21	3	CONCRETE (5 1/2")	2.0	106	
7.5	LS	19 23 28	6	Moist Brown Gravelly Well Graded Sand With Some Clay-FILL (4")	5.1	137	
10.0	LS	22 26 26		Medium Compact Moist Brown Fine SAND With Trace Of Gravel	5.7	123	
15.0	LS	26 32 34		Compact Moist Brown Medium SAND With Some Gravel	3.9	145	
20.0	LS	27 42/6"		Dense Moist Brown SAND & Gravel With Clayey Seams	6.9	151	
22.5	LS	10 19 28	22	Compact Wet Brown Medium To Coarse SAND With Trace Of Gravel	11.3	143	
			25				

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

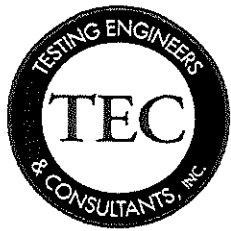
w - H₂O, % of dry weight
 d - Bulk Density, pcf
 qu - Unconfined Compression, psf
 DP - Direct Push

Water Encountered: 22'0"

At Completion: Caved At 19'0"

Boring No. M8A Madison

Bottom of Borehole at 25'



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(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M8B Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/19/2011
		Completed: 12/19/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
2.5	LS	9 8 8	.27 .83	ASPHALT (3 1/4") CONCRETE (6 3/4")	8.6	148	
5.0	LS	4 6 7		Medium Compact Moist Brown Medium SAND With Some Gravel & Clayey Seams	5.8	151	
7.5	LS	6 7 7	8		6.4	129	
10.0	LS	4 7/2"	9.2	Medium Compact Moist Brown Fine SAND With Clay Layer Dense Moist Brown SAND & Gravel	5.2	106	
15.0	LS	49 50/4.5"	15	Bottom of Borehole at 15'	6.6	127	

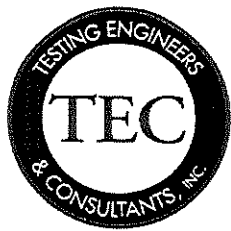
"N" - Standard Penetration Resistance
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 AS - Auger Sample

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

Water Encountered: None

At Completion: None

Boring No. M8B Madison



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(248) 588-6200 or (313) T-E-S-T-I-N-G

Fax (248) 588-6232

Boring No.: M9A Madison	Job No.: 51989	Project: Miscellaneous Geotechnical Services, Bundle One
Client: City of Ann Arbor		
Type of Rig: Truck		Location: Ann Arbor, Michigan
Drilling Method: Solid Stem Augers		Drilled By: I. Mickle
Ground Surface Elevation:		Started: 12/19/2011
		Completed: 12/19/2011

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
0.0			.19				
0.0			.75	ASPHALT (2 1/4")			
2.5	LS	3			11.9	132	
2.5		2	2.5	CONCRETE (6 3/4")			
2.5		2					
5.0	LS	2		Loose Moist Dark Brown Clayey Fine Sand With Some Gravel-FILL	9.3	106	
5.0		4					
5.0		3					
7.5	LS	2		Loose Moist Brown Fine Sand With Clayey Seams & Trace Of Gravel-FILL	14.4	116	
7.5		2					
7.5		2	8				
10.0	LS	7		Medium Compact Moist Brown Fine SAND With Clayey Seams	4.1	108	
10.0		9					
10.0		12					
12.5			12				
15.0	LS	18		Dense Moist Brown Medium SAND With Some Gravel & Pebbles	5.5	129	
15.0		24					
15.0		32					
20.0	LS	26			6.0	148	
20.0		38					
20.0		50/5"					
22.5	LS	48/6"			6.0	102	
22.5			25				

"N" - Standard Penetration Resistance
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 LS - Sectional Liner Sample
 ST - Shelby Tube Sample
 AS - Auger Sample

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

Bottom of Borehole at 25'

Water Encountered: None

At Completion: None

Boring No. M9A Madison