

**CITY OF ANN ARBOR
INVITATION TO BID**



Miller Avenue Rehabilitation

ITB No. 4753

Due Date: October 9, 2024 by 3:00 PM (Local Time)

PUBLIC SERVICES / ENGINEERING

Issued By:

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

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

INSTRUCTIONS TO BIDDERS

General

The purpose of this Invitation to Bid (ITB) is to select a firm to provide construction services for the Miller Avenue Rehabilitation Project.

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.

Pre-Bid Meeting

A pre-proposal conference for this project will be held on **September 17, 2024, 1:00PM (local time) at City of Ann Arbor ConfRoom – Larcom Basement A.**

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

American Rescue Plan Act (ARPA) Funding

The City of Ann Arbor has received funds from the United States Department of the Treasury (the "Treasury") pursuant to the Coronavirus State and Local Fiscal Recovery Fund under CFDA 21.027 ("ARPA Funds"), under Section 602 and 603 of Title VI the Social Security Act, as amended by Section 9901 of the American Rescue Plan Act of 2021 ("ARPA"); and the City has allocated ARPA Funds to provide funding for appropriate and qualifying expenditures as allowed under the Treasury Guidance Interim Final Rule "Coronavirus State and Local Fiscal Recovery Funds" (86 Fed. Reg. 267878). ARPA Funds will be used, in whole or in part, for services contracted pursuant to this ITB. The contract awarded will include the City of Ann Arbor American Rescue Plan Act (ARPA) Contract Addendum which contains additional terms and conditions required by ARPA in addition to those outlined in the sample contract attached hereto. Contractor will be expected to comply with all applicable federal, state, and local regulations. If a contract is awarded, the selected contractor will be required to register in SAM.gov and provide a Unique Entity ID number to the City prior to starting any work. Additionally, this project is not subject to the federal Davis-Bacon Act but is subject to compliance with the City of Ann Arbor's prevailing wage policy. Bidders are encouraged to closely review the sample contract and City of Ann Arbor American Rescue Plan Act (ARPA) Contract Addendum attached hereto.

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. No alternative bid will be considered unless alternative bids are specifically requested. If alternatives are requested, any deviation from the specification must be fully described, in detail on the "Alternate" section of Bid form.

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 Clarifications / Designated City Contacts

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 **September 20, 2024, 3:00PM (local time)** and should be addressed as follows:

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

Bid Process and Compliance questions emailed to cspencer@a2gov.org

Should any prospective bidder be in doubt as to the true meaning of any portion of this ITB, or should the prospective bidder find any ambiguity, inconsistency, or omission therein, the prospective bidder shall make a written request for an official interpretation or correction by the due date for questions above.

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 before October 9, 2024 by 3:00 PM (local time). Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder should submit one (1) original Bid, one (1) Bid copy and one (1) USB/flash in a sealed envelope clearly marked: **ITB# 4753 - Miller Avenue Rehabilitation**

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Services, 1st Floor
301 East Huron Street

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

The following forms provided within this ITB Document should be included in submitted bids.

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

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

Hand delivered bids may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule/entrance of City Hall which is accessible to the public at all hours. 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 for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion 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. All key staff and subcontractors are subject to the approval by the City.

Official Documents

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. Bidders do not need to be shown on the plan holders list provided by MITN to be considered an official plan holder.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of ninety (90) days.

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-2, 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

All contractors proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Section 5, beginning at page GC-2 shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

Wage Requirements

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

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. Use of the Sample Certified Payroll form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: SAM.gov.

For the purposes of this RFP the Construction Type of Heavy and Highway will apply.

Conflict Of Interest Disclosure

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected Vendor unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Vendor Conflict of Interest Disclosure Form is attached.

Major Subcontractors

The Bidder shall identify on Bid Form Section 4 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. The Bidder shall not change or replace a subcontractor without approval by the City.

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 submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known 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 Manager within five (5) business days of any notices of intent, including, but not exclusively, divisions on prequalification of bidders, shortlisting of bidders, or a notice of intent to award. Only bidders who responded to the solicitation may file a bid protest. 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.

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

Cost Liability

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the Bidder prior to the execution of a contract with the City. By submitting a bid, a bidder agrees to bear all costs incurred or related to the preparation, submission and selection process for the bid.

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.

Idlefree Ordinance

The City of Ann Arbor adopted an idling reduction Ordinance that went into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: www.a2gov.org/idlefree.

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

(1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

Environmental Commitment

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote and encourage the City's commitment to the environment.

The City strongly encourages potential vendors to bring forward tested, emerging, innovative, and environmentally preferable products and services that are best suited to the City's environmental principles. This includes products and services such as those with lower greenhouse gas emissions, high recycled content, without toxic substances, those with high reusability or recyclability, those that reduce the consumption of virgin materials, and those with low energy intensity.

As part of its environmental commitment, the City reserves the right to award a contract to the most responsive and responsible bidder, which includes bids that bring forward products or services that help advance the City's environmental commitment. In addition, the City reserves the right to request that all vendors report their annual greenhouse gas emissions, energy consumption, miles traveled, or other relevant criteria in order to help the City more fully understand the environmental impact of its procurement decisions.

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 City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, 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 (if applicable) 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 1:320 (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 certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

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 _____, 202_.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

LEGAL STATUS OF BIDDER

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

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.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

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

Authorized Official

_____ **Date** _____, 202_

(Print) Name _____ Title _____

Company: _____

Address: _____

Contact Phone () _____ Fax () _____

Email _____

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Miller Avenue Rehabilitation

File #: 2022-034

ITB #: 4753

ITEM NUMBER	LEGEND	ESTIMATED			TOTAL PRICE
		UNIT	QUANTITY	UNIT PRICE	
General					
01000.00	General Conditions, Max. \$300,000	LS	1	\$	\$
01001.00	Project Supervision, Max. \$150,000	LS	1	\$	\$
01002.00	Project Clean-Up and Restoration	LS	1	\$	\$
01003.00	Digital Audio Visual Coverage	LS	1	\$	\$
01021.00	Erosion Control, Inlet Protection, Fabric Drop	Ea	94	\$	\$
01030.00	Tree Protection Fence	Ft	1814	\$	\$
01040.00	Minor Traffic Control, Max. \$75,000	LS	1	\$	\$
01041.00	Traffic Regulator Control	LS	1	\$	\$
01050.00	Sign, Type B, Temp, Prismatic, Furn & Oper	Sft	1478	\$	\$
01051.00	Sign, Type B, Temp, Prismatic, Special, Furn & Oper	Sft	473	\$	\$
01052.00	Temporary "No Parking" Sign	Ea	43	\$	\$
01060.00	Lighted Arrow, Type A, Furn & Oper	Ea	1	\$	\$
01070.00	Sign, Portable, Changeable Message, Furn & Oper	Ea	8	\$	\$
01080.00	Plastic Drum, High Intensity, Lighted, Furn & Oper	Ea	459	\$	\$
01081.00	Channelizer Cone, High Intensity, 42 In., Furn & Oper	Ea	25	\$	\$
01092.00	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn & Oper	Ea	75	\$	\$
01100.00	Pedestrian Type II Barricade, Temp, Furn & Oper	Ea	231	\$	\$
01102.00	Temporary Pedestrian Ramp, Furn & Oper	Ea	11	\$	\$
01103.00	Temporary Pedestrian Mat, Furn & Oper	Ft	55	\$	\$
01110.00	Pavt Mrkg, Longit, Remove	Ft	24749	\$	\$
01112.00	Pavt Mrkg Cover, Type R, Black	Ft	1017	\$	\$
01127.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., White, Temp	Ft	13723	\$	\$
01128.00	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 In., Yellow, Temp	Ft	5183	\$	\$
01146.00	Pavt Mrkg, Wet Reflective, Type R, Tape, Thru and Lt Turn Arrow Sym	Ea	1	\$	\$
01160.71	DS_Sign, Type III, Erect, Salv	Ea	3	\$	\$
01160.72	DS_Band, Sign	Ea	5	\$	\$
01160.73	DS_Sign, Type IIIA	Sft	343	\$	\$
01160.74	DS_Sign, Type IIIB	Sft	12	\$	\$
01160.75	DS_Perforated Steel Square Breakaway System	Ea	74	\$	\$
01160.76	DS_Mast Arm Cable Mount	Ea	2	\$	\$
01160.77	DS_In-Street Sign	Ea	25	\$	\$
Removals					
02000.02	Tree, Rem, 13 In. - 19 In.	Ea	2	\$	\$
02000.03	Tree, Rem, 20 In. - 29 In.	Ea	3	\$	\$
02020.00	HMA, Any Thickness, Rem	Syd	6175	\$	\$
02021.00	HMA Surface, Rem	Syd	1511	\$	\$
02023.00	Cold-Milling HMA Surface	Syd	15997	\$	\$
02025.00	Concrete Pavt, Any Thickness, Rem	Syd	180	\$	\$
02030.00	Curb, Gutter, and Curb and Gutter, Any Type, Rem	Ft	2142	\$	\$
02040.00	Sidewalk, Sidewalk Ramp, and Driveway Approach, Any Thickness, Rem	Sft	8575	\$	\$
02050.71	DS_Sign, Type III, Rem	Ea	174	\$	\$
02050.00	Sign, Rem, Salv	Ea	2	\$	\$
Earthwork					
03021.00	Subgrade Undercutting, Type II	Cyd	200	\$	\$
03030.01	Exploratory Excavation, SD-TD-1, (0-10' Deep)	Ea	2	\$	\$
03030.03	Exploratory Excavation, SD-TD-2, (0-10' Deep)	Ea	2	\$	\$
03040.00	Earth Excavation	Cyd	81	\$	\$
03050.00	Embankment	Cyd	50	\$	\$
Sanitary Sewer					
04014.01	6 In., SDR 26 PVC Sanitary Service Lead, SD-TD-2	Ft	100	\$	\$
04060.00	Sanitary Structure Cover	Ea	23	\$	\$
04061.00	Sanitary Structure Cover, Adjust	Ea	23	\$	\$
TOTAL THIS PAGE (BF-1)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Miller Avenue Rehabilitation

File #: 2022-034

ITB #: 4753

ITEM NUMBER	LEGEND	ESTIMATED			
		UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
Storm and Drainage					
06000.01	12 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	813	\$	\$
06000.03	18 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	42	\$	\$
06000.05	24 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	315	\$	\$
06000.09	48 In., CL IV RCP Storm Sewer, SD-TD-1	Ft	380	\$	\$
06003.04	12 In., PE Storm Sewer, SD-TD-2	Ft	78	\$	\$
06003.06	18 In., PE Storm Sewer, SD-TD-2	Ft	78	\$	\$
06003.71	DS_Chambermaxx System	LS	1	\$	\$
06030.04	Storm Sewer Tap, 12 In. Dia.	Each	15	\$	\$
06050.01	DS_Storm Manhole, 48 In. Dia. (0-8' deep)	Ea	2	\$	\$
06050.02	Storm Manhole, 48 In. Dia. , Additional Depth	Ft	0.77	\$	\$
06050.05	DS_Storm Manhole, 72 In. Dia. (0-8' deep)	Ea	2	\$	\$
06050.06	Storm Manhole, 72 In. Dia. , Additional Depth	Ft	7.68	\$	\$
06060.01	DS_Storm Inlet-Junction, 36 In. Dia., (0-8' deep)	Ea	1	\$	\$
06060.03	DS_Storm Inlet-Junction, 48 In. Dia., (0-8' deep)	Ea	2	\$	\$
06070.01	DS_Storm Single Inlet, 24 In. Dia., (0-8' deep)	Ea	22	\$	\$
06070.02	Storm Single Inlet, 24 In. Dia., Additional Depth	Ft	0.55	\$	\$
06080.01	DS_Storm High Capacity Inlet, 48 In. Dia., (0-8' deep)	Ea	1	\$	\$
06090.01	DS_Storm Manhole with Weir, 72 In. Dia. (0-8' deep)	Ea	2	\$	\$
06090.02	Storm Manhole with Weir, 72 In. Dia., Additional Depth	Ft	2.34	\$	\$
06100.01	DS_Storm Manhole Over Existing ("Doghouse"), 48 In. Dia.	Ea	1	\$	\$
06100.02	DS_Storm Manhole Over Existing ("Doghouse"), 60 In. Dia.	Ea	1	\$	\$
06110.03	Storm Sewer Pipe, 12 In. Dia., Abandon	Ft	736	\$	\$
06120.03	Storm Sewer Pipe, 12 In. Dia., Rem	Ft	260	\$	\$
06130.00	Storm Sewer Structure, Abandon	Ea	1	\$	\$
06140.00	Storm Sewer Structure, Rem	Ea	6	\$	\$
06150.00	Storm Sewer Drop Structure, Rem	Ea	15	\$	\$
06160.01	Storm Structure Cover	Ea	48	\$	\$
06160.02	Storm Structure Cover, Adjust	Ea	48	\$	\$
06160.03	Storm Structure Adjust, Additional Depth	Ft	5	\$	\$
06180.02	Underdrain, Subgrade, 6 In.	Ft	815	\$	\$
Water Mains					
07000.02	6 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	94	\$	\$
07000.03	8 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	692	\$	\$
07000.05	12 In., PC 350 DIP w/polywrap, SD-TD-1	Ft	2912	\$	\$
07001.01	16 In., PC 250 DIP w/polywrap, SD-TD-1	Ft	33	\$	\$
07011.01	8 In. 90° DIP Bend	Ea	3	\$	\$
07011.02	8 In. 45° DIP Bend	Ea	44	\$	\$
07011.03	8 In. 22.5° DIP Bend	Ea	5	\$	\$
07011.04	8 In. 11.25° DIP Bend	Ea	1	\$	\$
07013.02	12 In. 45° DIP Bend	Ea	15	\$	\$
07013.03	12 In. 22.5° DIP Bend	Ea	2	\$	\$
07013.04	12 In. 11.25° DIP Bend	Ea	4	\$	\$
07014.02	16 In. 45° DIP Bend	Ea	2	\$	\$
07020.03	8 In. X 6 In. DIP Reducer	Ea	8	\$	\$
07020.14	16 In. X 12 In. DIP Reducer	Ea	1	\$	\$
07030.13	12 In. X 12 In. X 8 In. DIP Tee	Ea	18	\$	\$
07030.18	16 In. X 16 In. X 12 In. DIP Tee	Ea	1	\$	\$
07050.01	DS_Gate Valve in Box, 6 In.	Ea	8	\$	\$
07050.02	DS_Gate Valve in Box, 8 In.	Ea	4	\$	\$
07050.04	DS_Gate Valve in Box, 12 In.	Ea	6	\$	\$
07050.05	DS_Gate Valve in Box, 16 In.	Ea	2	\$	\$
07060.02	DS_Gate Valve in Well, 8 In.	Ea	5	\$	\$
07060.04	DS_Gate Valve in Well, 12 In.	Ea	3	\$	\$
07071.04	DS_Tapping Sleeve & Valve in Well, 12 In.	Ea	1	\$	\$
TOTAL THIS PAGE (BF-2)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Miller Avenue Rehabilitation

File #: 2022-034

ITB #: 4753

ITEM NUMBER	LEGEND	ESTIMATED			TOTAL PRICE
		UNIT	QUANTITY	UNIT PRICE	
Water Mains (continued)					
07080.00	Excavate & Backfill For Water Service Tap and Lead	Ft	822	\$	\$
07090.00	Water Structure Cover	Ea	3	\$	\$
07091.00	Water Structure Cover, Adjust	Ea	3	\$	\$
07100.00	Fire Hydrant Assembly, Complete	Ea	8	\$	\$
07102.00	Fire Hydrant Assembly, Rem	Ea	6	\$	\$
07110.01	Sacrificial Anode, 17-pound	Ea	19	\$	\$
07110.02	Sacrificial Anode, 32-pound	Ea	4	\$	\$
07120.00	Gate Box, Adjust	Ea	3	\$	\$
07121.00	Curb Box, Adjust	Ea	3	\$	\$
07130.01	Temporary Water Main Line Stop, 8 In. or less	Ea	11	\$	\$
07130.03	Temporary Water Main Line Stop, 12 In.	Ea	1	\$	\$
07130.04	Temporary Water Main Line Stop, 16 In.	Ea	4	\$	\$
07131.00	Temporary Water Main Line Stop, Additional Rental Day	Ea	5	\$	\$
07140.02	Water Main Pipe, 6 In. Dia., Abandon	Ft	2636	\$	\$
07140.03	Water Main Pipe, 8 In. Dia., Abandon	Ft	415	\$	\$
07140.05	Water Main Pipe, 12 In. Dia., Abandon	Ft	14	\$	\$
07140.07	Water Main Pipe, 16 In. Dia., Abandon	Ft	8	\$	\$
07160.02	Gate Valve in Box, 6 In. Dia., Abandon	Ea	8	\$	\$
07160.03	Gate Valve in Box, 8 In. Dia., Abandon	Ea	2	\$	\$
07160.05	Gate Valve in Box, 12 In. Dia., Abandon	Ea	1	\$	\$
07180.02	Gate Valve in Well, 6 In. Dia., Abandon	Ea	5	\$	\$
07180.03	Gate Valve in Well, 8 In. Dia., Abandon	Ea	2	\$	\$
07180.06	Gate Valve in Well, 16 In. Dia., Abandon	Ea	1	\$	\$
Streets, Driveways, & Sidewalks					
08000.00	Subbase, CIP	Cyd	407	\$	\$
08010.00	Aggregate Base Course, 21AA, CIP	Cyd	1779	\$	\$
08010.01	Aggregate Base, 4 In., 21AA, CIP	Syd	252	\$	\$
08010.02	Aggregate Base, 6 In., 21AA, CIP	Syd	1063	\$	\$
08010.03	Aggregate Base, 8 In., 21AA, CIP	Syd	133	\$	\$
08010.71	DS_Aggregate Base Conditioning	Syd	1596	\$	\$
08060.00	Hand Patching	Ton	110	\$	\$
08070.15	HMA, 4EML	Ton	2273	\$	\$
08070.19	HMA, 5EML	Ton	1818	\$	\$
08080.02	Conc Pavt, Non-Reinf, 7 In.	Syd	9	\$	\$
08080.03	Conc Pavt, Non-Reinf, 8 In.	Syd	1081	\$	\$
08080.04	Conc Pavt, Non-Reinf, 9 In.	Syd	371	\$	\$
08110.00	Conc, Curb or Curb & Gutter, All Types	Ft	2980	\$	\$
08110.71	DS_Conc, Curb or Curb & Gutter, Monolithic	Ft	211	\$	\$
08120.01	Conc, Driveway Opening, Type M	Ft	174	\$	\$
08130.01	Conc, Sidewalk, 4 In.	Sft	4720	\$	\$
08131.01	Conc, Sidewalk, Drive Approach, or Ramp, 6 In.	Sft	2396	\$	\$
08150.00	Detectable Warning Surface	Ft	320	\$	\$
08150.71	DS_Detectable Directional Tiles	Ea	16	\$	\$
08190.01	Pavt Mrkg, Polymer Cement Surface, Bike, Large Sym	Ea	1	\$	\$
08190.02	Pavt Mrkg, Polymer Cement Surface, Bike, Small Sym	Ea	36	\$	\$
08190.03	Pavt Mrkg, Polymer Cement Surface, Bike Thru Arrow Sym	Ea	29	\$	\$
08190.04	Pavt Mrkg, Polymer Cement Surface, Bike Lt Turn Arrow Sym	Ea	1	\$	\$
08190.05	Pavt Mrkg, Polymer Cement Surface, Bike Rt Turn Arrow Sym	Ea	2	\$	\$
08190.06	Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Sft	10616	\$	\$
08190.07	Pavt Mrkg, Polymer Cement Surface, Tan	Sft	820	\$	\$
08200.05	Pavt Mrkg, Polyurea, 12 In., Cross Hatching, White	Ft	162	\$	\$
08200.06	Pavt Mrkg, Polyurea, 12 In., Cross Hatching, Yellow	Ft	69	\$	\$
08200.07	Pavt Mrkg, Polyurea, 12 In., Crosswalk	Ft	3438	\$	\$
08200.09	Pavt Mrkg, Polyurea, 24 In., Stop Bar	Ft	439	\$	\$
TOTAL THIS PAGE (BF-3)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Miller Avenue Rehabilitation

File #: 2022-034

ITB #: 4753

ITEM NUMBER	LEGEND	ESTIMATED			
		UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
Streets, Driveways, & Sidewalks (continued)					
08200.12	Pavt Mrkg, Polyurea, 4 In., Yellow	Ft	4770	\$	\$
08200.13	Pavt Mrkg, Polyurea, 6 In., White	Ft	11161	\$	\$
08200.14	Pavt Mrkg, Polyurea, 6 In., Yellow	Ft	15522	\$	\$
08200.15	Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	Ea	3	\$	\$
08200.17	Pavt Mrkg, Polyurea, Rt Turn Arrow Sym	Ea	2	\$	\$
08200.18	Pavt Mrkg, Polyurea, Thru Arrow Sym	Ea	1	\$	\$
08200.30	Pavt Mrkg, Polyurea, Yield Triangle Sym	Ea	36	\$	\$
08200.31	Pavt Mrkg, Polyurea, Speed Hump Chevron, White	Ea	36	\$	\$
08200.71	DS_Continuous Base Mid Span L60	Ea	1079	\$	\$
08200.72	DS_Continuous Base Front Span L61	Ea	64	\$	\$
08200.73	DS_Continuous Base Rear Span L62	Ea	64	\$	\$
08200.74	DS_Big Bollard MASH L125SHM	Ea	901	\$	\$
08200.75	DS_Bikeway Delineator Post Black	Ea	89	\$	\$
08200.76	DS_Bikeway Delineator Post Yellow	Ea	20	\$	\$
08251.00	Recessing Pavt Mrkg, Longit	Ft	25247	\$	\$
08252.00	Recessing Pavt Mrkg, Transv	Sft	4392	\$	\$
08263.00	Rem Curing Compound, for Spec Mrkg	Sft	1504	\$	\$
08264.00	Rem Spec Mrkg	Sft	4910	\$	\$
08300.00	Monument Box, Adjust	Ea	12	\$	\$
Lighting and Electrical					
09020.00	Handhole, Rem	Ea	2	\$	\$
09030.01	Handhole Assembly, 17 In. X 30 In. x 18 In.	Ea	6	\$	\$
09122.00	Light Fixture, Rem and Salvage	Ea	1	\$	\$
09123.00	Light Fixture, Reinstall	Ea	1	\$	\$
09200.71	DS_Post, Steel, 3 lb	Ft	17	\$	\$
09200.72	DS_Ground Mtd Sign Support, Rem	Ea	2	\$	\$
09210.71	DS_Conduit, Directional Bore, 2, 3 inch	Ft	150	\$	\$
09210.72	DS_Conduit, DB, 1, 1 1/2 inch	Ft	140	\$	\$
09210.73	DS_Conduit, DB, 1, 3 inch	Ft	10	\$	\$
09210.74	DS_Conduit, DB, 2, 3 inch	Ft	75	\$	\$
09210.75	DS_Conduit, DB, 4, 3 inch	Ft	10	\$	\$
09211.71	DS_Cable Pole, TS and Sec, Disman	Ea	1	\$	\$
09211.72	DS_Cable, Sec, 600V, 1, 3/C#6	Ft	100	\$	\$
09211.73	DS_Wood Pole, Rem	Ea	1	\$	\$
09211.74	DS_Serv Disconnect	Ea	1	\$	\$
09211.75	DS_Serv Disconnect, Rem	Ea	1	\$	\$
09211.76	DS_Wood Pole, Fit Up, TS and Sec Cable Pole	Ea	1	\$	\$
09220.71	DS_Light Std Arm, Install Salv	Ea	1	\$	\$
09220.72	DS_Light Std Arm, Rem and Salv	Ea	1	\$	\$
09230.71	DS_Controller and Cabinet, Rem	Ea	1	\$	\$
09230.72	DS_Controller Fdn, Base Mount	Ea	1	\$	\$
09230.73	DS_Controller Fdn, Rem	Ea	1	\$	\$
09231.71	DS_Pedestal, Alum	Ea	1	\$	\$
09231.72	DS_Pedestal, Fdn	Ea	21	\$	\$
09231.73	DS_Pedestal Fdn, Rem	Ea	3	\$	\$
09231.74	DS_Pedestal, Rem	Ea	4	\$	\$
09231.75	DS_Pushbutton, Pedestal, Alum	Ea	1	\$	\$
09231.76	DS_Pushbutton, Rem	Ea	1	\$	\$
09231.77	DS_Pushbutton and Sign, Salv	Ea	1	\$	\$
09231.78	DS_Push Button Station and Sign	Ea	6	\$	\$
09232.71	DS_Span Wire, Rem	Ea	1	\$	\$
09232.72	DS_TS, Pedestrian, Bracket Arm Mtd, Rem	Ea	1	\$	\$
09232.73	DS_TS, Pedestrian, Pedestal Mtd, Rem	Ea	4	\$	\$
09232.74	DS_TS, Span Wire Mtd, Rem	Ea	2	\$	\$
TOTAL THIS PAGE (BF-4)					\$

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Miller Avenue Rehabilitation

File #: 2022-034

ITB #: 4753

ITEM NUMBER	LEGEND	ESTIMATED		TOTAL PRICE
		UNIT	QUANTITY	
Lighting and Electrical (continued)				
09232.75	DS_TS, Pedestrian, One Way Pedestal Mtd, Salv	Ea	1	\$ _____
09232.76	DS_Pedestrian Signal System, Accessible	Ea	1	\$ _____
09232.77	DS_TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	Ea	4	\$ _____
09232.78	DS_TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	Ea	1	\$ _____
09233.71	DS_Bracket, Truss, With 12 Foot Arm	Ea	2	\$ _____
09233.72	DS_Wireless Vehicle Sensor Node, Rem	Ea	15	\$ _____
09233.73	DS_Hemispherical Video Detection Camera	Ea	1	\$ _____
09233.74	DS_Hemispherical Video Detection System	Ea	1	\$ _____
09234.71	DS_Casing	Ft	7	\$ _____
09234.72	DS_Backplate, TS	Ea	7	\$ _____
09235.71	DS_Mast Arm Pole, Cat III	Ea	1	\$ _____
09235.72	DS_Mast Arm, 25 foot, Cat III	Ea	1	\$ _____
09235.73	DS_Mast Arm, 40 foot, Cat III	Ea	1	\$ _____
09235.74	DS_Mast Arm Pole Fdn, Modified	Ft	10	\$ _____
09235.75	DS_TS, One Way Bracket Arm Mtd (LED), Long Life	Ea	1	\$ _____
09235.76	DS_TS, One Way Mast Arm Mtd (LED), Long Life	Ea	6	\$ _____
09235.77	DS_TS, One Way Mast Arm Mtd, FYA (LED), Long Life	Ea	1	\$ _____
09235.78	DS_TS, One Way Pedestal Mtd (LED), Long Life	Ea	3	\$ _____
09236.71	DS_Controller, NEMA, ATC Type, Modified	Ea	1	\$ _____
09236.72	DS_Cabinet, NEMA Type, Modified	Ea	1	\$ _____
09240.71	DS_St Name Sign, Two Way, LED, 6 foot	Ea	1	\$ _____
09240.72	DS_St Name Sign, Two Way, LED, 8 foot	Ea	1	\$ _____
09240.73	DS_Roadside Unit, Rem and Salv	Ea	1	\$ _____
09240.74	DS_Roadside Unit, Install Salv	Ea	1	\$ _____
Landscaping				
10000.02	Tree, Large, B&B	Ea	10	\$ _____
10060.00	Turf Restoration	Syd	2595	\$ _____
TOTAL THIS PAGE (BF-5)				\$ _____
TOTAL FROM PAGE BF-1:				\$ _____
TOTAL FROM PAGE BF-2:				\$ _____
TOTAL FROM PAGE BF-3:				\$ _____
TOTAL FROM PAGE BF-4:				\$ _____
TOTAL BASE BID:				\$ _____

BID FORM

Section 2 – Material, Equipment and Environmental Alternates

The Base Bid proposal 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.

If an environmental alternative is bid the City strongly encourages bidders to provide recent examples of product testing and previous successful use for the City to properly evaluate the environmental alternative. Testing data from independent accredited organizations are strongly preferred.

<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 _____ Date _____

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-2, 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 _____ Date _____

BID FORM

Section 4 - Major 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.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

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 _____ Date _____

BID FORM

Section 6 – Contractor Information and Responsible Contractor Criteria

Backup documentation may be requested at the sole discretion of the City to validate all of the responses provided herein by bidders. False statements by bidders to any of the criteria provided herein will result in the bid being considered non-responsive and will not be considered for award.

Failure to provide responses to all questions may result in being deemed non-responsive.

Attach additional pages as needed if space below is insufficient.

Pursuant to Sec 1:312(20) of the City Code which sets forth requirements of a responsible bidder, Bidder is required to submit the following:

1. Organization Name: _____

Social Security or Federal Employer I.D. #: _____

Address: _____

City: _____ State: _____ Zip: _____

Type of Organization (circle one below):

Individual Partnership Corporation Joint Venture Other

If "Other" please provide details on the organization:

Year organization established: _____

2. Current owners/principals/members/managing members/partners of the organization:

3. Assumed Names, "doing business as" d/b/a, and/or former organization names(s), if applicable: _____

Explanation of any business name changes:

4. If applicable, please provide a list of all bidder's litigation and arbitrations currently pending and within the past five years, including an explanation of each (parties, court/forum, legal claims, damages sought, and resolution).

5. Qualifications of management and supervisory personnel to be assigned by the bidder:

6. List the state and local licenses and license numbers held by the bidder:

7. Will all subcontractors, employees and other individuals working on the construction project maintain current applicable licenses required by law for all licensed occupations and professions?

Yes

No

8. Will contractors, subcontractors, employees, and other individuals working on the construction project be misclassified by bidder as independent contractors in violation of state or federal law?

Yes

No

9. Submit a statement as to what percentage of your work force resides within the City of Ann Arbor, and what percentage resides in Washtenaw County, Michigan, and the same information for any major subcontractors.

10. Submit documentation as to bidder's employee pay rates (e.g., certified payroll without SSN or personal identifying information, or chart of job titles and pay rates, or other evidence).

11. State whether bidder provides health insurance, pension or other retirement benefits, paid leave (vacation, personal time, sick leave, etc), or other benefits to its employees, and if so, state whether each benefit is provided directly to employees, by payments or contributions to a third-party administered plan, in cash (e.g., fringe benefit portion of prevailing wages), or other manner.

12. State whether bidder is an equal opportunity employer and does not discriminate in its hiring on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation or gender identity, height, weight, or disability.

Yes

No

13. State whether bidder has Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses, and if so, submit supporting documentation or other evidence of such program(s).

14. Has bidder had any violations of state, federal, or local laws or regulations, including OSHA or MIOSHA violations, state or federal prevailing wage laws, wage and hour laws, worker's compensation or unemployment compensation laws, rules or regulations, issued to or against the bidder within the past five years?

Yes

No

If you answered "yes" to the question above, for each violation provide an explanation of the nature of the violation, the agency involved, a violation or reference number, any other individual(s) or party(ies) involved, and the status or outcome and resolution.

15. Does bidder have an existing Fitness for Duty Program (drugs and alcohol testing) of each employee working on the proposed jobsite?

Yes

No

If you answered "Yes", please submit documentation of the Fitness for Duty Program and what it entails.

16. Submit documents or evidence of any debarment by any federal, state or local governmental unit and/or findings of non-responsibility or non-compliance with respect to any public or private construction project performed by the bidder.

17. Proof of insurance, including certificates of insurance, confirming existence and amount of coverage for liability, property damage, workers compensation, and any other insurances required by the proposed contract documents.

18. Does bidder have an on-going MIOSHA-approved safety-training program for employees to be used on the proposed job site?

Yes

No

If bidder answered "yes" to the question above, submit documentation of your safety-training program.

19. Does bidder have evidence of worker's compensation Experience Modification Rating ("EMR")?

Yes

No

EMR = _____

20. Will bidder use masters, journeypersons and apprentices on the project?

Yes

No

If bidder answered "yes" to the question above, provide the ratio of masters and journeypersons to apprentices for this project.

Ratio: _____

If bidder answered "no" to the question above, submit documentation regarding the qualifications of each worker who may or will be assigned on the project.

If, yes, Ratio = _____

21. Can bidder provide documentation that it participates in a Registered Apprenticeship Program (RAP) that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the Office of Apprenticeship?

Yes

No

If bidder answered "yes" to the question above, please submit a copy of the program document(s) and evidence of its registration.

If bidder answered "no" to the question above, please provide details on how you assess the skills and qualifications of any employees who do not have master or journeyperson certification or status, or are not participants in a Registered Apprenticeship Program.

22. Will bidder comply with all applicable state and federal laws and visa requirements regarding the hiring of non-US citizens, and disclosure of any work visas sought or obtained by the bidder, any of the bidder's subcontractors, or any of the bidder's employees or independent contractors, in order to perform any portion of the project?

Yes

No

23. Submit evidence that bidder has financial resources to start up and follow through on the project and to respond to damages in case of default as shown by written verification of bonding capacity equal to or exceeding the amount of the bidders scope of work on the project. The written verification must be submitted by a licensed surety company rated B+ or better in the current A.M. Best Guide and qualified to do business within the State of Michigan, and the same audited financial information for any subcontractor estimated to be paid more than \$100,000 related to any portion of the project.

24. Submit evidence of a quality assurance program used by the bidder and the results of same on the bidder's previous projects.

SAMPLE STANDARD CONTRACT

If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors of service to the City of Ann Arbor such as the following:

CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East 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 **Miller Avenue Rehabilitation and ITB# 4753** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

Non-discrimination and Living Wage
Declaration of Compliance Forms (if
applicable)
Vendor Conflict of Interest Form
Prevailing Wage Declaration of
Compliance Form (if applicable)
Bid Forms
Contract and Exhibits
Bonds

General Conditions
Standard Specifications
Detailed Specifications
Plans
Addenda
ARPA Contract Addendum

ARTICLE II - Definitions

Administering Service Area/Unit means **Public Services Area / Engineering Unit**

Project means **ITB No.4753, Miller Avenue Rehabilitation**

Supervising Professional means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: Nicholas Hutchinson, PE whose job title is City Engineer. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means _____ [Insert name] whose job title is [Insert job title].

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 two hundred and fourteen (214) consecutive calendar days.
- (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 equal to \$2,000.00 for each calendar day of delay in the completion of all the work. 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.

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.

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 Form for the estimated bid 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. Increases or decreases shall be determined only by written agreement between the City and Contractor.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by 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 Contract, 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 Contract.

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. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold 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. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

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

ARTICLE XI – Electronic Transactions

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

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
Milton Dohoney Jr, City Administrator

By _____
Brian Steglitz, Public Services Area
Administrator

Approved as to form and content

Atleen Kaur, City Attorney

CITY OF ANN ARBOR

AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM

Notice: The contract or purchase order to which this addendum is attached is made using federal assistance provided to the City of Ann Arbor by the U.S. Department of Treasury under the American Rescue Plan Act (“ARPA” and “ARPA Funds”), Sections 602(b) and 603(b) of the Social Security Act, Pub. L. No. 117-2 (March 11, 2021). In using such funds, the City must comply with the terms of ARPA, regulations issued by the U.S. Department of the Treasury (“Treasury”) governing the expenditure of monies distributed from the ARPA Funds (including, without limitation, the Interim Final Rule (86 Fed. Reg. 26,786 (May 17, 2021) and Final Rule (87 Fed. Reg. 4,338 (Jan. 27, 2022))), the Award Terms and Conditions applicable to the ARPA Funds, and such other guidance as Treasury has issued or may issue governing the expenditure of monies distributed from the ARPA Funds (collectively, the “Regulatory Requirements”). Additionally, pursuant to the Regulatory Requirements, the City must comply with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 other than such provisions as Treasury has determined or may determine are inapplicable to the ARPA Funds and pursuant to 2 C.F.R. §200.327 the City must include within any contract applicable provisions described in Appendix II to 2 C.F.R. Part 200, each of which is contained in this Addendum.

The following terms and conditions apply to you, the contractor or vendor, as a contractor of the City of Ann Arbor, according to the City’s Award Terms and Conditions; by ARPA and its implementing regulations; and as established by the Treasury Department.

ARPA Requirements. Contractor agrees to comply with the requirements of Section 603 of ARPA, the Treasury’s regulations implementing that section, and guidance issued by Treasury regarding the foregoing. Contractor also agrees to comply with all other applicable federal laws, regulations, and executive orders, and Contractor shall provide for such compliance by other parties in any agreements it enters into with other parties relating to this Contract.

Termination for Cause and for Convenience. The City reserves the right to immediately terminate this Contract in the event of a breach or default of the Contract by Contractor in the event Contractor fails to: 1) meet schedules, deadlines, and/or delivery dates within the time specified in the Contract; 2) make any payments owed; or 3) otherwise perform in accordance with the Contract. The City also reserves the right to terminate this Contract immediately, with written notice to Contractor, for convenience, if the City believes, in its sole discretion that it is in the best interest of the City to do so. Contractor will be compensated for work performed and accepted and goods accepted by the City as of the termination date if the Contract is terminated for convenience of the City.

Equal Employment Opportunity

- A. Contractor shall comply with Executive Order 11246, “Equal Employment Opportunity,” as amended by EO 11375, “Amending Executive Order 11246 Relating to Equal Employment

Opportunity,” and as supplemented by regulations at 41 CRF part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

- B. If this contract is a Federally Assisted Construction Contract exceeding \$10,000, during the performance of this Contract, Contractor agrees as follows:
- i. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
 - ii. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
 - iii. Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with Contractor's legal duty to furnish information.
 - iv. Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - v. Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
 - vi. Contractor will furnish to the Administering Agency and the Secretary of Labor all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Administering Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- vii. In the event of Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended, in whole or in part, and Contractor may be declared ineligible for further Government contracts or Federally Assisted Construction Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965. Such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- viii. Contractor will include the provisions of paragraphs B(i) through (vii) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. Contractor will take such action with respect to any Subcontract or purchase order as the Administering Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Provided, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Administering Agency, Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The City further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work. Provided, that if the City so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract.

- ix. The City agrees that it will assist and cooperate actively with the Administering Agency and the Secretary of Labor in obtaining the compliance of Contractor and any Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor; that it will furnish the Administering Agency and the Secretary of Labor such information as they may require for the supervision of such compliance; and that it will otherwise assist the Administering Agency in the discharge of the agency's primary responsibility for securing compliance.
- x. The City further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally Assisted Construction Contracts pursuant to the Executive Order and that it will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractor and any Subcontractors by the Administering Agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the City agrees that if it fails or refuses to comply with these undertakings, the Administering Agency may take any or all of the following actions: cancel, terminate, or suspend, in whole or in part, this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from

such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

- C. If this Contract is not a Federally Assisted Construction Contract exceeding \$10,000, the provisions of this section shall not apply.

Copeland “Anti-Kickback” Act. Contractor and any subcontractors performing work under the Contract shall comply with all applicable provisions of the Copeland “Anti-Kickback” Act (18 U.S.C. § 874; 40 U.S.C. §3145) as supplemented by Department of Labor regulations (29 C.F.R. Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The City shall report all suspected or reported violations to Treasury.

Contract Work Hours and Safety Standards Act. If this Contract is for an amount in excess of \$100,000 and involves the employment of mechanics or laborers, Contractor must comply with 40 U.S.C. §§3702 and 3704, as supplemented by Department of Labor regulations (29 C.F.R. Part 5). Under 40 U.S.C. §3702 of the Act, Contractor must compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. §3704 are applicable to construction work and provide that no laborer or mechanic must be required work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Rights to Inventions Made Under a Contract or Agreement. Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the Federal Government and the recipient in any resulting invention in accordance with 37 C.F.R. part 401, “Rights to Inventions Made by Non-profit Organizations and Small Business Firms Under Government Grants, Contracts, and Cooperative Agreements,” and any applicable implementing regulations.

Clean Air Act and Federal Water Pollution Control Act

- A. *Clean Air Act.* Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§7401 *et seq.* Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.

Federal Water Pollution Control Act. Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251 *et seq.* Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each

Subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.

Debarment and Suspension

- A. This Contract is a covered transaction for purposes of 2 CFR §180.210 and 31 CFR §19.210. Therefore, this Contract is a lower-tier covered transaction for purposes of 2 C.F.R. Part 180 and 31 C.F.R. Part 19 if (1) the amount of this Contract is greater than or equal to \$25,000 (2 C.F.R. §180.220(b)(1); 31 C.F.R. §19.220(b)(1)); (2) the Contract requires the consent of an official of the Department of the Treasury (2 C.F.R. §180.220(b)(2); 31 C.F.R. §19.220(b)(2)); or (3) this Contract is for federally required audit services (2 C.F.R. §180.220(b)(3); 31 C.F.R. §19.220(b)(3)).
- B. As a covered transaction, Contractor is required to verify that its principals (defined at 2 CFR §180.995) or its affiliates (defined at 2 CFR §180.905) of both Contractor and its principals are not excluded (defined at 2 CFR §180.935) and are not disqualified (defined at 2 CFR §180.935). Contractor represents and warrants that, as of the execution of this Contract, neither Contractor and its principals nor any subcontractor or sub-consultant performing work under this Contract (at any tier) is included on the federally debarred bidder's list listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. §180 that implement Executive Orders 12549 (3 C.F.R. part 1986 Comp., p. 189) and 12689 (3 C.F.R. part 1986 Comp., p. 235), "Debarment and Suspension." Additionally, Contractor's completed Certification Regarding Debarment, Suspension and Other Responsibility Matters is attached hereto (Attachment 2) and incorporated herein. This certification is a material representation of fact relied upon by the City and all liability arising from an erroneous representation shall be borne solely by Contractor.
- C. If at any point during the Contract term, Contractor or its principals or any subcontractor or sub-consultant performing work at any tier is included on the federally debarred bidder's list, Contractor shall notify the City immediately.
- D. If any of the foregoing persons are excluded or disqualified and the Secretary of the Treasury has not granted an exception pursuant to 31 C.F.R. §19.120(a) (a) this Contract shall be void; (b) City shall not make any payments of federal financial assistance to Contractor; and (c) City shall have no obligations to Contractor under this Contract.
- E. Contractor must comply with 2 CFR pt. 180, subpart C and 31 CFR pt. 19, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- F. If it is later determined that Contractor did not comply with 2 CFR pt. 180, subpart C and 31 CFR pt. 19, in addition to remedies available to the City, the Federal

Government may pursue available remedies, including but not limited to suspension and/or debarment.

Byrd Anti-Lobbying Amendment. Contractor certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. §1352. Contractor shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

Purchases over \$100,000 - Contractors must sign the certification included as Attachment 1 and shall cause any subcontractors with a subcontract (at any tier) exceeding \$100,000 to file with the tier above it the same certification

Procurement of Recovered Materials

- A. This section shall apply if (1) this Contract involves the purchase of an item designated by the Environmental Protection Agency (“EPA”) in 40 C.F.R. Part 247 that exceeds \$10,000 or (2) the total value of such designated items acquired during The City’s preceding fiscal year exceeded \$10,000.

In the performance of the Contract, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items, unless the product cannot (1) be acquired competitively within a timeframe providing for compliance with the Contract performance schedule, (2) meet Contract performance requirements, or (3) be acquired at a reasonable price.

Information about this requirement, along with the list of EPA-designated items, is available on EPA’s website. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

Prohibition on Contracting for Covered Telecommunications and Video Surveillance

Services or Equipment. Contractor shall not use funds under this Contract to purchase, or enter into subcontracts to purchase, any equipment, services, or systems that use telecommunications equipment or services as a substantial or essential component of a system that is subject to 2 CFR § 200.216 (generally, video surveillance or telecommunications equipment produced by Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company, their subsidiaries or affiliates, or any entity that the Secretary of Defense reasonably believes to be an entity owned or controlled by the government of a foreign country). In the event Contractor identifies covered telecommunications equipment or services that constitute a substantial or essential component of any system, or as critical technology as part of any system that is subject to 2 CFR § 200.216, during Contract performance, Contractor shall alert the City as soon as possible and shall provide information on any measures taken to prevent recurrence.

Buy USA - Domestic Preferences for Certain Procurements Using Federal Funds.

Contractor should, to the greatest extent practicable under a Federal award, provide a

preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. For purposes of this section "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States and "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

Solicitation of Minority and Women-Owned Business Enterprises. Contractor hereby agrees to comply with the following when applicable: The requirements of Executive Orders 11625 and 12432 (concerning Minority Business Enterprise), and 12138 (concerning Women's Business Enterprise), when applicable. Accordingly, the contractor hereby agrees to take affirmative steps to assure that women and minority businesses are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:

- A. Including qualified women's business enterprises and small and minority businesses on solicitation lists;
- B. Assuring that women's enterprises and small and minority businesses are solicited whenever they are potential sources;
- C. When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by small and minority business, and women's business enterprises;
- D. Where the requirement permits, establishing delivery schedules which will encourage participation by women's business enterprises and small and minority business; and
- E. Using the services and assistance of the Small Business Administration, and the U.S. Office of Minority Business Development Agency of the Department of Commerce; and the North Carolina Office for Historically Underutilized Businesses.

For the purposes of these requirements, a Minority Business Enterprise (MBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by members of the following groups: Black, Hispanic, Asian or Pacific Islander, American Indian, or Alaskan Natives. A Women Business Enterprise (WBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by women.

Access to Records; Record Retention

- A. Contractor agrees to provide the City, the Department of the Treasury, the Treasury Office of Inspector General, the Government Accountability Office, and the Comptroller General of the United States, or any authorized representatives of these entities, access to any records (electronic and otherwise) of Contractor which are directly pertinent to this Contract to conduct audits or any other investigations. Contractor agrees to permit any of

the foregoing parties to reproduce such records by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

Contractor agrees to provide the Treasury Department or authorized representatives access to construction or other work sites pertaining to the work being completed under the Contract.

No language in this Contract is intended to prohibit audits or internal reviews by the Treasury Department or the Comptroller General of the United States.

Contractor agrees to retain all records covered by this section through December 31, 2031, or such longer period as is necessary for the resolution of any litigation, claim, negotiation, audit, or other inquiry involving the Contract.

Assurances of Compliance with Title VI of the Civil Rights Act of 1964. Contractor and any subcontractor, or the successor, transferee, or assignee of Contractor or any subcontractor, shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. §§2000d *et seq.*), as implemented by the Department of the Treasury's Title VI regulations, 31 C.F.R. Part 22, which are herein incorporated by reference and made a part of this Contract. Title VI also provides protection to persons with "Limited English Proficiency" in any program or activity receiving federal financial assistance, 42 U.S.C. §§2000d *et seq.*, as implemented by Treasury's Title VI regulations, 31 C.F.R. Part 22, and herein incorporated by reference and made a part of this Contract.

Other Non-Discrimination Statutes. Contractor acknowledges that the City is bound by and agrees, to the extent applicable to Contractor, to abide by the provisions contained in the federal statutes enumerated below and any other federal statutes and regulations that may be applicable to the expenditure of ARPA Funds:

- A. The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 *et seq.*), which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
- B. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
- C. The Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101 *et seq.*), and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and
- D. Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§12101 *et seq.*), which prohibits discrimination on the basis of disability in programs, activities, and

services provided or made available by state and local governments or instrumentalities or agencies thereto.

Other Applicable Statutes and Regulations

A. Prohibition on Providing Funds to the Enemy (2 CFR 183)

- i. The Contractor must exercise due diligence to ensure that none of the funds, including supplies and services, received under this Contract are provided directly or indirectly (including through subcontracts) to a person or entity who is actively opposing the United States or coalition forces involved in a contingency operation in which members of the Armed Forces are actively engaged in hostilities. The Contractor must terminate or void in whole or part any subcontract with a person or entity listed in the System Award Management Exclusions (SAM) as a prohibited or restricted sources pursuant to subtitle E of Title VIII of the NDAA for FY 2015, unless the Federal awarding agency provides written approval to continue the subcontract.
- ii. The Federal awarding agency has the authority to terminate or void this Contract, in whole or in part, if the Federal awarding agency becomes aware that the Contractor failed to exercise due diligence as required by paragraph (i) of this clause or if the Federal awarding agency becomes aware that any funds received under this Contract have been provided directly or indirectly to a person or entity who is actively opposing coalition forces involved in a contingency operation in which members of the Armed Forces are actively engaged in hostilities.
- iii. In addition to any other existing examination-of-records authority, the Federal Government is authorized to examine any records of the Contractor and its Subcontracts to the extent necessary to ensure that funds, including supplies and services, available under this Contract are not provided, directly or indirectly, to a person or entity that is actively engaged in hostilities.
- iv. The Contract must include the substance of this clause, including paragraph, in subcontracting agreements that have an estimated value over \$50,000 and will be performed outside the United States, including its outlying areas.

Contractor agrees to comply with the Regulatory Requirements applicable to this Contract, which include, without limitation, the following:

- i. 2 C.F.R. Part 200 Appendix II requirements;
- ii. Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200, as applicable;
- iii. Universal Identifier and System for Award Management (SAM), 2 C.F.R. Part 25, pursuant to which the award term set forth in Appendix A to 2 C.F.R. Part 25;
- iv. OMB (Office of Management and Budget) Guidelines to Agencies on Government-wide Debarment and Suspension (Non-procurement), 2 C.F.R. Part 180, including the requirement to include a term or condition in all lower tier covered transactions (contracts and subcontracts described in 2 C.F.R. Part 180, subpart B) that the

award is subject to 2 C.F.R. Part 180 and Treasury's implementing regulation at 31 C.F.R. Part 19;

- v. Recipient Integrity and Performance Matters, pursuant to which the award term set forth in 2 C.F.R. Part 200, Appendix XII to Part;
- vi. Government-wide Requirements for Drug-Free Workplace, 31 C.F.R. Part 20; and
- vii. Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328), which limits certain political activities of federal employees, as well as certain other employees who work in connection with federally funded programs.

Conflicts of Interest; Gifts and Favors

- A. Contractor understands that (1) the City will use ARPA Funds to pay for the cost of this Contract and (2) the expenditure of ARPA Funds is governed by the City's Conflict of Interest Policy and the Regulatory Requirements (including, without limitation, 2 C.F.R. §200.318(c)(1)).

Contractor certifies to the City that as of the date hereof, to the best of its knowledge after reasonable inquiry, no employee, officer, or agent of the City involved in the selection, award, or administration of this Contract (each a "Covered Individual"); no member of a Covered Individual's immediate family; no partner of a Covered Individual; and no organization (including Contractor) which employs or is about to employ a Covered Individual has a financial or other interest in, or has received a tangible personal benefit from, Contractor. Should Contractor obtain knowledge of any such interest or any tangible personal benefit described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to the City in writing.

Contractor certifies to the City that it has not provided, nor offered to provide, any gratuities, favors, or anything of value to an officer, employee, or agent of the City. Should Contractor obtain knowledge of the provision, or offer of any provision, of any gratuity, favor, or anything of value to an officer, employee, or agent described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to the City in writing.

Publications. Any publications produced with funds from this award must display the following language: "This project [is being] [was] supported, in whole or in part, by federal award number [enter project FAIN] awarded to [name of recipient] by the U.S. Department of Treasury."

Miscellaneous

- A. *Increasing Seat Belt Use in the United States.* Pursuant to Executive Order 13043, 62 Fed. Reg. 19,216 (Apr. 18, 1997), the City encourages Contractor to adopt and enforce

on-the-job seat belt policies and programs for its employees when operating company-owned, rented, or personally owned vehicles.

- B. *Reducing Text Messaging While Driving.* Pursuant to Executive Order 13513, 74 Fed. Reg. 51,225 (Oct. 6, 2009), the City encourages Contractor to adopt and enforce policies that ban text messaging while driving.

Conflicts and Interpretation. To the extent that any portion of this Addendum conflicts with any term or condition of this Contract expressed outside of this Addendum, the terms of this Addendum shall govern.

FOR CONTRACTOR

By _____

Name:

Title:

Date: _____

FOR THE CITY OF ANN ARBOR

By _____

Milton Dohoney Jr., City Administrator

Date: _____

- (This form is required only for purchases of more than \$100,000) -

**ATTACHMENT 1
CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM**

**31 C.F.R. PART 21 – New Restrictions On Lobbying
CERTIFICATION REGARDING LOBBYING**

The undersigned certifies, to the best of the undersigned's knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31 of the U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies and affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

ATTACHMENT 2
CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM
CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies to the best of its knowledge and belief that neither it nor any of its officers, directors, or managers who will be working under the Contract, or persons or entities holding a greater than 10% equity interest in it (collectively "Principals"):

1. Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department or agency in the United States;
2. Have within a three-year period preceding this proposal, bid, or agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust or procurement statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are presently indicted for or otherwise criminally or civilly charged by a government entity, (federal, state or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies that they are "Actively" registered with SAM (System for Award Management) and have been assigned the following Unique Entity Identifier (UEI): _____. The undersigned further certifies that it shall not knowingly enter any transaction with any subcontractor, material supplier, or vendor who is debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department/agency.

I understand that a false statement on this certification may be grounds for rejection of this proposal or bid, or termination of the award or, in some instances, criminal prosecution.

The Contractor, _____, certifies as stated above:

Signature Date

Print Title and Name of authorized representative

I am unable to certify to one or more the above statements. Attached is my explanation.

Signature Date

Print Title and Name of authorized representative

ATTACHMENT 3
CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM

System for Award Management (SAM) record search for business name and business principal
– (*Screenshot of Results*)

PERFORMANCE BOND

- (1) _____ (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 entitled _____, for ITB No. _____ 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.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

SIGNED AND SEALED this _____ day of _____, 202_.

 (Name of Surety Company)
 By _____
 (Signature)

Its _____
 (Title of Office)

Approved as to form:

 Atleen Kaur, City Attorney

 (Name of Principal)
 By _____
 (Signature)

Its _____
 (Title of Office)

Name and address of agent:

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 entitled _____

_____, for ITB No. _____; 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.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu
of an original signature and agree to treat electronic signatures as original signatures that bind them to
this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile
signature will be deemed to have the same effect as if the original signature had been delivered to the
other party.

SIGNED AND SEALED this _____ day of _____, 202_

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

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.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

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.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

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 MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

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 all permits 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 pay for such permits and such permit or plan review fees. 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

- (1) 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 and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of

policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) 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

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. 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 Project General Aggregate
- \$1,000,000 Personal and Advertising Injury
- \$2,000,000 Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. 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.

- (d) 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.

- (2) Insurance required under subsection (1)(b) and (1)(c) above 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 for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 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(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements 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 and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be 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-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

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 authorized to transact business in Michigan and 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.

Section 43

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20___, to _____, 20___, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled _____, for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

Contractor

Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

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 Bid. 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.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

DETAILED SPECIFICATIONS

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

AA:IVK

9/6/24

Description

Examination of Plans, Specifications, and Work Site

Bidders shall carefully examine the Bid Form, plans, specifications, and the work site until the Bidder is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the Contract.

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. The Contractor shall begin the work of this project on or before **April 14, 2025**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.
2. This Contract requires water main, storm sewer, sidewalk replacement, road resurfacing, cycle track installation, pavement marking and land turf establishment on Miller Avenue from Newport Road to S. Seventh Street, and from S. Seventh Street to Chapin Street. All contract work must be complete and open to traffic by **November 15, 2025**. The total calendar days for this contract is two hundred fourteen (214) days.
3. Contractor shall sequence the water and storm sewer installation in a way that does not interrupt service of other utilities.
4. Contractor shall provide all necessary sewer flow control to maintain flow at all existing sewer crossings, connections and lead transfers.
5. No work shall be performed during Holiday weekends as follows, unless approved by the City of Ann Arbor:
 - Memorial Day, from 3:00 p.m. Friday May 23, 2025, through 7:00 a.m. Tuesday May 27, 2025
 - Fourth of July, from 3:00 p.m. Thursday July 3, 2025, through 7:00 a.m. Saturday July 5, 2025
 - Labor Day, from 3:00 p.m. Friday August 29, 2025 through 7:00 a.m. Tuesday September 2, 2025
6. No work shall be performed during University of Michigan home football games.

City Council Authorizations is expected November/December 2024. The Contractor shall not begin the work without approval from the Project Engineer, and in no case before the receipt of the Notice to Proceed.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

AA:IVK

9/6/24

Contractor will be furnished with two (2) copies of the Contract, for his/her execution, before the aforementioned City Council meeting. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificate, to the City within **ten (10) days**.

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

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

Liquidated Damages

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, **\$2,000.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the times for each sub-phase, as required by this Detailed Specification.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer's approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season.

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

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT COORDINATION

AA:IVK

Page 1 of 1

9/5/2024

The Contractor is hereby notified that there may be other construction projects, not associated with this project, scheduled for construction during the same timeframe as this project within the local vicinity.

The following is a listing of known road construction projects within the local vicinity that may have an impact on this project. Please note that this listing may not be complete and the Contractor shall verify any other projects within the local vicinity that may impact this project.

- The Seventh Street CPM project in the City of Ann Arbor will be under construction.
- Ann Arbor Street Resurfacing project will be ongoing.

The Contractor shall coordinate its work on this project with that by the Contractor on other projects, as directed by the Engineer. No additional compensation will be allowed for costs incurred by the Contractor due to coordinating with or delays caused by other projects.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PERMANENT SIGN AND SUPPORT

HRC: NBN

1 of 2

9/3/2024

a. Description

This work consists of removing or furnishing all components for the Permanent Sign and Support as shown on the plans or as directed by the Engineer. The Sign and Support shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall remove or furnish materials in accordance with Section 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Permanent Sign and Support shall be manufactured using design standards from the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and/or engineering judgment. The model includes the Sign Panel (Type IIIA or Type IIIB), Support (Perforated Steel Square Tube Breakaway System, Sign Band, or Mast Arm Cable Mount), Reflective Panel, and all associated hardware, that includes, but not limited to, bolts, nuts, washers, and plates.

Sign Type IIIA and Sign Type IIIB shall meet the requirements as stated in Section 919 of the MDOT Standard Specifications for Construction.

Ground Mounted Sign Support shall meet the requirement as stated in Section 810 of the MDOT Standard Specifications for Construction and MDOT Standard Plan SIGN-200-X (latest plan).

The Perforated Steel Square Tube Breakaway System shall meet the requirements as stated in Section 810 of the MDOT Standard Specifications for Construction and MDOT Standard Plan SIGN-207-X (latest plan).

The Sign Band and Reflective Panel shall meet the requirements as stated in Section 810 of the MDOT Standard Specifications for Construction.

The Mast Arm Cable Mount shall be manufactured by Pelco Products, Inc. or an approved equal by the Engineer. The model includes the Galaxy Sign-Brac with stainless cable mount and formed tube (AG-0142), the clamp kit (AG-3055), and sign bracket with hardware (AB-0507).

c. Construction

The Contractor shall remove or furnish and install the permanent signs and supports as indicated on the plans or as directed by the Engineer. Ensure work complies with Sections 810 and 919 of the MDOT Standard Specifications for Construction and this special provision.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Sign, Type III, Rem.....	Ea
DS_Sign, Type III, Erect, Salv.....	Ea
DS_Sign, Type IIIA.....	Sft
DS_Sign, Type IIIB.....	Sft
DS_Ground Mtd Sign Support, Rem.....	Ea
DS_Perforated Steel Square Tube Breakaway System.....	Ea
DS_Band, Sign.....	Ea
DS_Mast Arm Cable Mount, Rem.....	Ea
DS_Mast Arm Cable Mount.....	Ea
DS_Reflective Panel for Permanent Sign Support, 3 foot.....	Ea
DS_Reflective Panel for Permanent Sign Support, 6 foot.....	Ea

DS_Sign, Type __, Rem; DS_Sign, Type III, Erect, Salv; DS_Sign, Type __; DS_Ground Mtd Sign Support, Rem; DS_Perforated Steel Square Tube Breakaway System; DS_Band, Sign; DS_Mast Arm Cable Mount, Rem; DS_Mast Arm Cable Mount and DS_Reflective Panel for Permanent Sign Support, __ will be measured by the quantity shown on the plans and as specified herein and includes payment for all materials to be delivered to the City of Ann Arbor Public Works Wheeler Service Center. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
IN-STREET SIGNAGE

HRC: NBN

1 of 2

9/3/2024

a. Description

This work consists of furnishing and installing all components for In-Street Signage as shown on the plans or as directed by the Engineer. The In-Street Pedestrian Signage shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the In-Street Signage shall be manufactured by Qwick Kurb, Inc. or an approved equal by the Engineer. The model includes the Mega Marker (L104), Stand Alone Base Unit (L50) or Base Unit (L54), two (2) Reflective Arcs (L65), and all associated hardware that includes, but not limited to, screws, nuts, washers, bolts, flex boots, marker mounts, pavement anchors, and connection hooks.

The face of Mega Marker shall include the legend of a pedestrian crosswalk or bicycle facility sign on both sides as shown on the plans. The sign support shall be designed to bend over and bounce back to its normal vertical position if it is struck by a vehicle.

The legend of the R1-6a In-Street Pedestrian Crossing sign shall read, LOCAL LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK. The legend shall be surrounded by a fluorescent yellow-green background on both sides.

The legend of the R9-6 Bicycles Yield to Pedestrians Sign shall read BICYCLISTS YIELD TO PEDS.

c. Construction

The In-Street Signage shall be laid out for approval by the Engineer before installation. The In-Street Signage shall be placed in the roadway or median island at the crosswalk location as shown on the plans. The Mega Marker, Base Unit, and Reflective Arcs shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_In-Street Sign	Ea

DS_In-Street Sign will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CHAMBERMAXX SYSTEM

AA: JKA

1 of 7

05/2/24

- a. Description.** This work consists of installing stormwater management as shown on the plans or as directed by the Engineer. Stormwater Retention Systems with ground infiltration are best management practices (BMPs) which are designed to capture stormwater and store it until some, or all, of the stormwater filters into the surrounding soil. This system is effective for removing fine grained pollutants. The removal of suspended solids from the runoff will improve the quality of the captured runoff. The system retains stormwater in open-bottomed chambers underground, which increases the amount of water that infiltrates into the ground and reduces the volume of water reentering the stormwater system. The system will improve water quality of captured runoff and decrease potential for the storm system surcharging, while having minimal impact on above-ground land use.

General

1. This item shall govern the furnishing and installation of ChamberMaxx underground detention and infiltration chamber systems.
2. Contractor shall furnish all labor, materials, equipment and incidentals necessary to install the ChamberMaxx system, appurtenances and incidentals in accordance with the Drawings and as specified herein.
3. The containment row of the ChamberMaxx system is recommended as the appropriate means of pretreating for the purpose of extending the maintenance interval on the ChamberMaxx system and reducing the life cycle cost. The containment row shall consist of a row of chambers which lays upon 2 layers of AASHTO M288 Class I woven geotextile between the chamber and stone bedding.
4. Applicable provisions of any Division shall govern work in this section.
5. Related Standards:
 - a. ASTM 2418 "Standard Specification for Polypropylene Corrugated Wall Stormwater Collection Chambers"
 - b. ASTM F-2787 "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers"
6. Site layout drawings, product specifications, materials, hydraulic storage data and supported calculations of proposed alternatives shall be submitted to the Engineer of Record (EOR) for review at a minimum of 10 working days prior to bid closing.
7. Shop drawings shall be annotated to indicate all materials to be furnished and installed under this section, and all applicable standards for materials, required tests of materials and design assumptions for structural analysis:
8. Before installation of the ChamberMaxx system, Contractor shall obtain the written approval of the EOR for the stormwater system and the installation drawings.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CHAMBERMAXX SYSTEM

AA: JKA

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05/2/24

9. All proposed alternatives to the ChamberMaxx system shall conform to applicable above referenced ASTM specifications.

b. Materials. The Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install the retention system with infiltration as specified on the Drawings and manufactured by Contech as ChamberMaxx, or Engineer approved equivalent, as detailed in the Specifications.

1. The chamber shall be constructed of injection molded polypropylene copolymer formulated for high impact and stress cracking resistance and sustained structural performance during high temperatures. The chamber shall be designed and manufactured in accordance with ASTM F-2418 and F-2787.
2. The chamber shall be designed to AASHTO LRFD Bridge Design Specifications (Section 12), as applied to material and performance requirements for buried thermoplastic pipes. Design live load shall be the AASHTO HS-20 and HS-25 truck, including multiple lane presence factors, over a minimum cover of 18 inches and chamber row spacing of 5 inches or greater.
3. The chamber system shall be comprised of three chamber configurations: The MIDDLE chambers shall be open-ended to allow unobstructed hydraulic flow, inspection, and maintenance. The START and END chambers shall each have an integral end wall designed to resist loading at the start and end of the chamber rows. The chambers within a row shall be installed with overlapping end corrugations.
4. The nominal dimensions of the START chamber shall be 51.4 inches wide, 30.3 inches tall, and 98.4 inches long. The nominal dimensions of the MIDDLE chamber shall be 51.4 inches wide, 30.3 inches tall, and 91.0 inches long. The nominal dimensions of the END chamber shall be 51.4 inches wide, 30.3 inches tall, and 92.0 inches long. The nominal storage volume inside the chamber shall be 75 cubic feet when utilizing 6" of stone above and below chamber with 40% stone porosity per ChamberMaxx standard detail.
5. The chamber shall have a continuously-curved, arch-shaped section profile.
6. The START and END chamber integral end wall shall be structurally suitable for cutting and inserting inlet pipes and shall provide a range of pipe diameter indicants up to 24" diameter as cutting templates.
7. The chamber shall be a corrugated, open-bottom design and top vent orifices for hydraulic pressure equalization. Corrugation valleys and crests shall be sub-corrugated to increase stiffness.
8. The chamber shall have a circular cut line for an optional reinforced inspection port configured to accept a 4" Schedule 40 pipe.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CHAMBERMAXX SYSTEM

AA: JKA

3 of 7

05/2/24

9. The END chambers shall be capable of being cut to shorter lengths to accommodate site specific requirements.
10. The chamber shall be supported by integral structural footings comprised of load dispersing toe ribs and longitudinally aligned stiffening ribs.
11. The manufacturer of the ChamberMaxx system shall be one that has regularly been engaged in the engineering design and production of these systems for at least eight (8) years and which has a history of successful production, acceptable to the Engineer of Record (EOR). In accordance with the Drawings, the ChamberMaxx system shall be supplied by:

Contech Engineered Solutions
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

c. Performance.

1. The ChamberMaxx system proposal shall be sized in accordance with the design provided and approved by the Engineer of Record (EOR). Any Contractor deviating from the design shown on the plans, to include: material, footprint, etc., shall provide to the EOR a summary report on stage-storage curves, design calculations, HydroCAD modeling and engineering drawings.
2. ChamberMaxx row spacing, and stone base thickness cannot be altered with consultation from Contech Engineered Solutions, LLC.
3. The ChamberMaxx system shall be designed so as the hydraulic grade line will increase evenly throughout whereas transverse movement from one storage compartment to another shall not be permitted. All storage compartments shall be connected via manifold (or connecting pipe) versus by entirely transporting stormwater through stone.
4. The ChamberMaxx system shall include a containment row(s) for the collected of sediment in stormwater prior to flowing into the chamber array. The containment row shall be connected to a diversion structure with a 24-inch pipe. The initial flow of stormwater shall be diverted by a weir into the containment row. The containment row shall consist of a row of chambers which lays upon 2 layers of AASHTO M288 Class I woven geotextile between the chamber and stone bedding.

d. Execution

1. The ChamberMaxx system shall be installed per the Contech "ChamberMaxx Stormwater Retention System Standard Installation Detail", available from local Contech representative or from www.conteches.com.

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2. For temporary construction vehicle loads, an extra amount of compacted cover may be required over the top of the chambers. The Height-of-Cover shall meet the minimum requirements shown in the Contech "ChamberMaxx Stormwater Retention System Standard Installation Detail". The use of heavy construction equipment necessitates greater protection for the chambers than finished grade cover minimums for normal highway traffic.
3. The contractor shall follow Occupational Safety and Health Association (OSHA) guidelines for safe practices in executing the installation process in accordance with the manufacturer/supplier installation recommendations.
4. Contractor is required to participate in an on-site preconstruction meeting with the supplier prior to the scheduled delivery date of the ChamberMaxx system.

The Contractor must notify the Engineer in advance when specific items are ready for observation. The construction shall not proceed without the approval of the Engineer at the specific points indicated below, unless the express consent of the Engineer is given to proceed. The Engineer may stop construction and/or have materials removed at the Contractor's expense if no notification or approval to proceed is given. Contractor responsibilities include:

- **Start of construction** – Locate utilities and layout sand filters, relocate utilities as required while providing the required separation of at least 2', locate and install appropriate temporary erosion control measures.
- **Completion of excavation** – Excavate material and verify contours and that the base of the entire sand filter is level.
- **Placement of underdrain structures and gravel** – Place geofabric, underdrains, stormwater control structures, and stormwater storage chambers and make internal connections between stormwater control structures, place storage aggregate in compacted lifts with a middle geofabric layer, and place at least an additional 6" of storage aggregate above the middle geofabric. A top geofabric layers shall be installed on top of the final aggregate grade, or as specified in the manufacturer's installation guide.
- **Install open cell pavers** – Place open cell pavers onto aggregate material for both curbs cut spillways and sand filter terraces. Install pavers according to manufacturer instructions.
- **Placement of filter soil** – Verify that material is approved prior to placement, install the filter soil and perform final grading to the needed contours.
- **Completion of construction** – Seeding of other restoration areas and installation of permanent erosion control measures, removal of excess or excavated materials, and general cleanliness and completeness of work areas.

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CHAMBERMAXX SYSTEM

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e. Products

- **Geofabric:** Geofabric shall be constructed of a non-woven geotextile that meets AASHTO M288 Class 2. The geofabric shall be placed on the bottom, sides, and ends of the excavated sand filter with a minimum overlap of 2' at all joints. Geofabric will also be placed above the stormwater storage chambers as shown on the drawings.
- **Perforated Pipe:** Underdrain piping will consist of perforated single wall HDPE highway pipe with geofabric sock unless otherwise noted on Drawings. The perforations shall be slits in the corrugations spaced every 4 inches or an equivalent approved by the Engineer. A perforated pipe shall be installed on the geofabric within the base of the storage aggregate and shall originate 1 foot short of the sand filter wall and terminate in the specified catch basin structure.
- **Stormwater Storage Chambers:** The chambers shall meet the ASTM F 2922-12 standard specification for polyethylene (PE) corrugated wall stormwater storage chambers. The installed chamber system shall provide the load factors specified in the ASSHTO LRFD bridge design specifications section 12.12 for earth and live loads with consideration for impact and possible vehicle presence. Chambers shall be ChamberMaxx or equal.
- **Storage Aggregate:** Storage aggregate shall consist of $\frac{3}{4}$ " – 2" crushed angular stone. The material shall be washed and contain no more than 1% fines, including silt, clay or organic material. No PreCenozoic limestone, dolomite, or stone containing phosphate shall be used.
- **Filter Soil:** Filter soil shall be composed of 75% by weight of sand and 25% compost. Sand shall be clean construction sand, free of deleterious materials including but not limited to clay, silt, organics, woody debris, construction debris or other materials that may negatively affect infiltration. Clean construction sand or clean river-run sand is acceptable. A sample of the sand shall be made available to the Engineer prior to mixing the amended soils. Any deleterious materials in the sand will be screened at the expense of the Contractor.
- **Compost** shall be aged yard-leaf compost and shall be free of deleterious materials including but not limited to clay, silt, manure solids, woody debris, plastics, construction debris or other materials that may negatively affect infiltration. The pH shall be between 5.5 and 8.5. Particles shall be able to pass through a 1-inch screen or smaller. Compost that smells putrid, has an ammonia odor, or shows visible signs of mold is unacceptable. A sample of the compost shall be made available to the Engineer prior to mixing the amended soils.
- **Catch Basin Structure and Grate:** The catch basin (structure) shall consist of a 3' x 3' precast structure with a depth and grate size as indicated on the drawings, cast as a single unit consisting of the base and side walls and fit with a top slab frame and grate. Structure, frames and covers shall support an H20 loading. Structure shall have a 6" inlet cast into the catch basin chamber that extends 6" from the exterior of the structure and shall include

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a breakout panel for installation of the catch basin lead to the stormwater drainage system. Pipe connection to storm sewer shall be sealed with a rubber boot to limit infiltration or approved equal.

For locations with turf, the appropriate turf seed blend shall be installed in all areas containing filter soil.

All curb cuts, overland flow or other hydrologic inputs shall not be brought online and allowed to enter sand filters for at least 14 days following seeding, or until turf establishment is verified and approved by Engineer.

f. Maintenance and Guarantee

The Contractor shall assume responsibility for maintaining work to the end of the guarantee period. During this period, the Contractor shall make a minimum of one maintenance trip every 4 weeks during the growing season and as many more as necessary to keep the plantings and turf in a thriving condition.

Maintenance activities generally include but are not limited to: prescribed burns, herbicide applications of invasive species, spot-spraying or hand-pulling undesirable weeds, irrigation, debris removal, and supplemental plantings as determined to be appropriate by the Engineer.

- Watering shall be the responsibility of the Contractor. Seed shall be kept moist for optimum growth (1 inch of water each week, including rainfall) for the first growing season. Any erosion resulting from watering shall be repaired by the Contractor.
- Weeding will be the responsibility of the Contractor. The sand filters will be kept free of species other than the prescribed seed.
- Trash removal and maintenance of the drainage structures will be the responsibility of the Contractor. The drainage structures and inlets will be kept free of debris that may block storm flows and cause an overflow of the sand filters. Protection from foot traffic, mowing, or herbicide application is the responsibility of the Contractor. Appropriate signage and/or fencing may be used following approval by the Engineer to protect the plantings until they are fully established.

The Contractor shall replace, at no cost to the Owner, all dead vegetation during the maintenance period, and will maintain the sand filters to ensure uniform healthy plant growth, in order for the site to be released by the Engineer so that the Contractor may be paid the final retainage.

Maintenance Plan

During the period of the contract, the contractor shall perform the elements of the Maintenance Plan, as described below. This plan requires the following bi-annual inspection (Fall and Spring) to be performed:

- Inspect and maintain the sand filter catch basins – Vegetation, grass, bark, mulch, and accumulated leaves from the fall season, and grit from the winter season will accumulate in the sand filters. Perform inspections in the fall and spring and clear and remove these materials from the catch basin and catch basin sumps using a Vactor or alternative

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methods.

- Inspect and maintain the curb cut energy dissipation pads – Solids and grit may accumulate on the energy dissipation pads downstream from the curb cuts that enter each sand filter. Areas with accumulation should be swept or vactored to remove deposited solids.
- Inspect and maintain the sand filter surfaces – The sand filter surface should be inspected, and if necessary, any leaves, trash, or other material removed. A motorized vacuum methods used for leaf collection shall be employed.
- Inspect the terraces for erosion – Some sand filters may have terraces to make sure that surface water is evenly distributed. These terraces shall be inspected to verify that they have not eroded and that the spillway pavers have adequate soil to support vegetation. Any eroded areas shall be repaired to make sure that the terraces are continuous and vegetated.
- Standing water and sediment inspection – Should standing water be observed, or if the base of the sand filter is less than 4” below the catch basin grate elevation, the surface of the sand filter may need to be removed and replaced with appropriate filter soils and replanted. The use of 75% sand and 25% compost shall be used, and a low maintenance turf blend used to minimize the amount of mowing or watering needed in the sand filter areas. If the discharge orifice is plugged, this should be unblocked, and material removed so that it will discharge flow at the required rate.

Guarantee

By May 31st of the year following seeding, the sand filter and surrounding disturbed areas shall show a uniform density of healthy specimens of turf or native cover. The sand filters shall also be free of weeds and trash, and covered in a uniform layer of mulch, as determined by the Engineer.

Uniform density is deemed as 85% coverage of all sand filter areas, with no bare patches greater than 4 square feet within the sand filters, or bare patches greater than 1 square foot within the areas of turf grass.

Any area in the sand filters that fails to show a uniform density of plants shall be replanted with appropriate native seed mix, temporary stabilization seed mix, or turf. Any bare patches around the borders will be reseeded with fescue until a uniform density of turf grass is established.

g. 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>
DS_CHAMBERMAXX SYSTEM	LS

The unit price includes all labor, equipment, materials, and documents necessary to install the sand filter, catch basin, stop gate and control orifice as detailed in the plans.

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DETAILED SPECIFICATION
FOR
DRAINAGE STRUCTURES

AA:TCA

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8/29/24

Description

This work shall consist of furnishing all labor, tools, equipment, and material to construct drainage structures in accordance with 2024 Public Services Standard Specifications Article 4 and Article 10, Section II.S., as shown on the plans, and as specified herein.

Materials

Fluidic-Amp Vortex valve, as shown on the plans.

Structure cover, as specified on the plans.

Construction

Install vortex valve per manufacturer recommendation.

Measurement and Payment

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

Pay Item	Pay Unit
DS_Storm Manhole, __ In. Dia. (0-8' deep)	Each
DS_Storm Inlet-Junction, __ In. Dia., (0-8' deep).....	Each
DS_Storm Single Inlet, __ In. Dia., (0-8' deep)	Each
DS_Storm High Capacity Inlet, __ In. Dia., (0-8' deep)	Each
DS_Storm Manhole with Weir, __ In. Dia. (0-8' deep).....	Each
DS_Storm Manhole Over Existing ("Doghouse"), __ In. Dia.	Each

Payment for the structure frame and cover, as specified, and the adjusting of drainage structure covers shall be included in payment for the structure and shall not paid for separately.

Payment for the vortex valve shall be included in payment for **DS_Storm Manhole with Weir, 72 In. Dia. (0-8' deep)**.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER STRUCTURES

AA:TCA

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8/29/24

Description

This work shall consist of furnishing all labor, tools, equipment, and material to construct drainage structures in accordance with 2024 Public Services Standard Specifications Article 3 and Article 10, Section II.K., as shown on the plans, and as specified herein.

Measurement and Payment

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

Pay Item	Pay Unit
DS_Gate Valve in Well, ___ In.	Each
DS_Gate Valve in Box, ___ In.	Each
DS_Tapping Sleeve & Valve in Well, ___ In.	Each

The gate well frame and cover shall be included in payment for **DS_Gate Valve in Well, ___ In.** and shall not be paid for separately.

The gate valve box shall be included in payment for **DS_Gate Valve in Box, ___ In.** and shall not be paid for separately.

The well cover shall be included in payment for **DS_Tapping Sleeve & Valve in Well ___ In.** and shall not be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATON
FOR
WATER MAIN INSULATION

AA:IVK

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09/4/24

Description

This work shall consist of furnishing all labor, tools, equipment, and material to insulate shallow water main pipes in accordance with 2024 Public Services Standard Specifications Article 3 and Article 10 as shown on the plans, and as specified herein.

All pipes shall be laid to depths shown on contract drawing, which shall normally be 5.5 feet of cover from finished grade to top of pipe. Where conflict with other utilities prevent 5.5 feet of cover, insulation shall be placed in locations as shown on the plans or as directed by the Engineer.

Materials

Insulation shall be closed-cell extruded polystyrene boards (blue boards) with minimum dimensions of 2 inches thick and 2 feet wide (4 feet wide for pipe diameters greater than 12") where water main cover is between 3 ½ to 5 feet. A minimum of two layers shall be used, 4 inches total thickness.

Insulating concrete shall consist of 1 part Portland cement and eight (8) parts of perlite or vermiculite aggregate by volume. Clean water shall be added to the mixture in sufficient quantity to permit the mix to be workable with as little water as possible.

Construction

Insulate water main wherever cover over water main is less than 5 feet. Prior to placement of the polystyrene boards, bedding material shall be placed to a height of 6 inches over the top of the pipe, leveled, and compacted. The insulating boards shall be placed on the cover material with the long side parallel to the centerline of the water main for a minimum width of 0.0. + 24 inches. The boards shall be placed in a staggered arrangement to eliminate continuous transverse joints. Each layer should be placed to cover the joints, of the layer immediately below.

The first lift of backfill material shall consist of 6 inches of bedding material which shall be end or side dumped onto the insulation board and spread in such a manner that construction equipment does not operate directly on the insulation. Once this layer has been compacted to the specified density, the remaining layers of backfill may be constructed utilizing conventional procedures.

Insulating concrete shall be used to insulate the water main wherever water main cover is less than 3 ½ feet. Insulating concrete shall be placed around the entire main above the bedding material to a minimum thickness of 6 inches.

CITY OF ANN ARBOR
DETAILED SPECIFICATON
FOR
WATER MAIN INSULATION

AA:IVK

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09/4/24

Measurement and Payment

All costs associated with insulating water main pipes will not be paid for separately but is included in the corresponding water main pay items.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WATER MAIN ABANDON

AA:TCA

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1/30/24

Description

This work shall consist of furnishing all labor, tools, equipment, and material to properly abandon water mains as indicated on the Plans or as directed by the Engineer. This work shall be performed in accordance with 2024 Public Services Standard Specifications Article 3, except as specified herein.

Construction

The Contractor shall abandon water mains where shown on the Plans and as directed by the Engineer. This includes, but is not limited to, properly draining the main, cutting the main at every connection point (each end and all side street connections), and plugging the abandoned cut ends with brick and mortar, concrete, or mechanical joint plug.

Any previously abandoned water main that is removed for installation of another utility shall be properly abandoned and plugged on each remaining end. This is included in the payment of the installed utility and shall be paid for separately.

Measurement And Payment

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

Pay Item	Pay Unit
DS_Water Main Pipe, Abandon, Modified, _____	LS

Payment shall be made when the entire water main is properly abandoned on the associated road.

No additional payment shall be made for removing or abandoning previously abandoned water main that is removed for installation of another utility.

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DETAILED SPECIFICATION
FOR
AGGREGATE BASE

AA:TCA

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02/13/2024

Description

This work consists of constructing an aggregate base course on a surface approved by the Engineer using only crushed limestone. This work shall be performed in accordance with 2024 Public Services Standard Specifications Article 10, Section III.G., except as specified herein.

Material

Provide aggregate material meeting the requirements for Class 21AA dense-graded aggregate in accordance with City Standards and specified in section 902 of the MDOT 2020 Standard Specifications for Construction. The ONLY permitted material shall be crushed limestone unless otherwise approved by the Engineer.

Construction

Construct aggregate base course in accordance with City Standards. Deliver Class 21AA dense-graded aggregate to the job site in a thoroughly blended condition and handle in such a manner that there will be no mixing of underlying soil with the base aggregate.

Measurement and Payment

This pay item shall be used when aggregate base is required to meet the proposed grades of subbase and no base was identified on the plans.

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

<u>Pay Item</u>	<u>Pay Unit</u>
Aggregate Base Course, 21AA, CIP	Ton

Aggregate Base Course, 21AA, CIP will be measured by the unit ton and pay for it at contract unit price, which price includes costs for all labor, equipment, and materials necessary to complete the work. Load weight tickets from a certified scale, accepted at the job site by the City’s agent will be the basis for measurement.

Weigh any/all unused/waste material on a certified scale to determine quantity(s) unless the Engineer approves an alternate method to arrive at these amount(s). Provide load weight tickets to the City’s agent for any/all unused/waste material.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
AGGREGATE BASE CONDITIONING

HRC: ENR

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9/6/2024

a. Description

This work consists of compacting and grading the existing aggregate base as shown on plans or as directed by the Engineer. The aggregate base conditioning shall be in accordance with Section 302 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as specified herein.

b. Materials

The Aggregate material shall meet the aggregate series as shown on the plans.

c. Construction

Shall conform to subsections 302.03A and 302.03B of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction.

d. Measurement and Payment

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

Pay Item	Pay Unit
DS_Aggregate Base, Conditioning	Square Yard

DS_Aggregate Base, Conditioning will be measured by the width and length shown on the plans and includes payment for all labor, equipment, and materials needed furnish, place, and compact the aggregate base.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MONOLITHIC CURB AND GUTTER

HRC: ENR

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9/6/2024

a. Description

This work consists of constructing concrete curb and gutter on the prepared base in accordance with Section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction as shown on plans, except as specified herein.

b. Materials

The materials shall meet the requirements as specified in Section 802 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and specified herein:

All monolithic curb and gutter shall be grade 3500 with 6AA coarse aggregate. The Contractor may elect to add GGBFS to 3500 mixtures in accordance with the requirements of the contract documents. No additional payment will be made for concrete mixtures containing GGBFS.

c. Construction

DS_Conc, Curb or Cub & Gutter, Monolithic shall be constructed as shown on the plans.

Each section shall be poured as one continuous curb or curb and gutter and follow section 802.03 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except as modified per the detail shown on the plans.

d. Measurement and Payment

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

Pay Item	Pay Unit
DS_Conc, Curb or Curb & Gutter, Monolithic	Foot

DS_Conc, Curb or Curb & Gutter, Monolithic will be measured by the unit installed and will be paid for at the contract unit price per Foot, for which price shall be payment in full for all labor, equipment, and materials.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
DRIVEWAY AND SIDEWALK

AA:TCA:CEC

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8/29/24

Description

This work shall consist of constructing subbase and/or aggregate base courses, on either a prepared subbase or aggregate base as indicated on the Plans or where directed by the Engineer. This work shall be performed in accordance with Public Services Standard Specifications (2024) Article 10, Section III.G. and Section III.H., except as specified herein.

Materials

The material used for this work shall meet the requirements of Sections 301, 302, 305, 307, and 902 of MDOT 2020 Standard Specification for Construction, except that the aggregate base under driveways shall be 21AA limestone (permanent and temporary applications) with a maximum loss by washing of 8% and any subbase under sidewalks shall be Class II Granular Material.

Construction

Concrete drive approaches shall be placed on 6" of 21AA limestone.

Sidewalk through drive approaches shall be placed on 6" of 21AA limestone.

Measurement and Payment

Where 21AA is used for aggregate base course, it shall be measured and paid in accordance with **Aggregate Base, __ In., 21AA, CIP.**

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

Pay Item	Pay Unit
DS_Conc, Sidewalk, Drive Approach, or Ramp, __ In.	Square Feet

Payment includes all labor, material and equipment needed to furnish and install concrete sidewalk and drive approaches.

The aggregate base shall be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
DETECTABLE DIRECTIONAL TILE

HRC: NBN

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9/6/2024

a. Description

This work consists of furnishing and installing all components for the Detectable Directional Tile as shown on the plans or as directed by the Engineer. The Detectable Directional Tile shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The contractor shall furnish materials in accordance with Section 803 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Detectable Directional Tile shall be manufactured by Armor-Tile or an approved equal by the Engineer. The model includes the Detectable Bar Tile (ADD-504/ADA-D-448) and all associated hardware that includes, but not limited to, expansion anchors, adhesives, and sealants.

The Detectable Bar Tile shall be 6 inches by 48 inches, color Federal Yellow (#33538), and compliant with the Americans with Disabilities Act (ADA) standards. The Detectable Bar Tile consists of a polymer composite with a bar-like pattern.

c. Construction

The Detectable Directional Tile shall be laid out for approval by the Engineer before installation. The Detectable Directional Tile shall be placed adjacent to bus stop landings and perpendicular to the curb as shown on the plans. The Detectable Directional Tile shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Detectable Directional Tile.....	Ea

DS_Detectable Directional Tile will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories, mounting hardware, and adhesive required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
PAVEMENT MARKINGS

AA:TCA

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1/30/24

Description

This work consists of installing a polymer cement surface system (PCSS) on a prepared substrate in accordance with these specifications, the plans, and/or as directed by the Engineer for the purposes of delineating dedicated or shared bicycle lanes. This work shall be performed in accordance with performed in accordance with 2024 Public Services Standard Specifications Article 10, Section III.M., except as specified herein.

Materials

Green Bike Lanes: Use Endurablend™ System PCSS material manufactured by Pavement Surface Coatings, LLC, 81 Ball Road, Mountain Lakes, NJ 07046. (Telephone: 866-215-6120) or approved equal. Pre-approval of an equivalent product must have proven in- place history over asphalt and/or concrete and meet the material property requirements shown below and be installed in accordance with this specification. The color will be green and must comply with FHWA standards for daytime and nighttime chromaticity values.

1. The daytime chromaticity coordinates for the color used for green colored pavement shall be as follows:

	1		2		3		4
x	y	x	y	x	y	x	y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

2. The daytime luminance factor (Y) shall be at least 7, but no more than 35.
3. The nighttime chromaticity coordinates for the color used for green colored pavement shall be as follows:

	1		2		3		4
x	y	x	y	x	y	x	y
0.230	0.754	0.366	0.540	0.450	0.500	0.479	0.520

4. PCSS Material Properties: The polymer cement surface or approved equal shall provide a skid and abrasion resistant surface and meet or exceed the requirements in Table 2.1.

Table 2.1 - Polymer Cement Material Properties		
Description	Test Method	Value
Compressive Strength, (at 28 days) 2" Cube ¹	ASTM C-109	>3,200 PSI
Tensile Strength ¹	ASTM C-190	>350 PSI
Bond Strength with Asphalt ^{1,2}	ASTM C-1583	>250 PSI

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 DETAILED SPECIFICATION
 FOR
PAVEMENT MARKINGS

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Table 2.1 - Polymer Cement Material Properties (Cont.)		
Description	Test Method	Value
Skid Resistance (at 60km/hr)	ASTM E-1911 ASTM E-274	>40 >40
Length Change ¹	ASTM C-157	<0.024%
Solar Reflectivity Index ^{3,4}	ASTM C-1549 ASTM E-1980	>0.29
Wet Mix Flowability ⁷	ASTM C-939	20-45 sec
Wet Mix Air Voids ⁷	Chase Meter	<6%
Total Air Content ⁵	Microscope Analysis of Section	<5%
Flexibility ⁶	½" Thick Beam under Static Load – Max. Deflection	≥½"

- 1) The data shown is representative of laboratory test 28 day cured samples at 50% humidity.
- 2) Prepare a test sample by overlaying ¼" (6mm) of product on 12.5mm HMA sample.
- 3) Obtain an SRI of greater than 29 by using pigments or changing the color index of the aggregate. It is not applicable for requested color pigments.
- 4) Only applicable for projects where a LEED certification credit is a requirement of the surfacing or where specifications require a reflective surfacing.
- 5) Required to provide balance between flexibility, minimal permeability, and therefore maximum durability.
- 6) Use the same loading rate as for the ASTM C-109 test above.
- 7) Quality assurance tests for site.

5. Chemical Admixtures/Pigments: The manufacturer shall approve the dosage rates and the conditions for use in the PCSS of any chemical admixtures and/or color pigments.

6. Delivery, Storage, and Handling: Deliver material to site in weatherproof containers and store in a covered and ventilated location.

White Pavement Markings: per 2024 Public Services Standard Specifications Article 10, Section III.M.

Construction

Construct white pavement markings per 2024 Public Services Standard Specifications Article 10, Section III.M.

Construct green bike lane pavement markings in accordance with manufacturer application

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DETAILED SPECIFICATION
FOR
PAVEMENT MARKINGS

AA:TCA

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and installation procedures, 2024 Public Services Standard Specifications Article 10, Section III.M., as applicable, and as directed by the Engineer.

Use equipment approved by the manufacturer or an approved installer. The installer shall demonstrate that the equipment is capable of handling materials, performing the work, maintaining proper material temperature, maintaining the minimum level of required productivity, and producing a product of the specified quality and be maintained in good mechanical condition. Provide sufficient equipment to enable the prosecution of the work in accordance with the project schedule and completion of the work in the specified time. Use equipment capable of handling and transferring the dry materials and liquids to the approved mixer without causing spillage, segregation, or contamination.

The measuring and mixing operation shall be capable of producing a consistent homogeneous mix sufficient to maintain the production levels required for the work. Charge the water and dry blend into the mixer and blend to the desired consistency while maintaining effective temperatures to prevent flashing of the mix. Hand mixing in pails is not permissible.

Follow manufacturer recommended pavement and air temperatures. Place PCSS only when all the following conditions are met:

- The pavement surface is dry.
- Ambient and substrate temperatures are 50° F (10° C) and rising and expected to remain above 50° F (10° C) for 6 hours.
- There is no forecast of temperatures below 35° F (2° C) within 24 hours from the time of placement.
- The weather is not foggy or rainy. When rain appears imminent, all placement operations shall cease, and the work shall not resume until the threat of rain has passed.

When the ambient temperature is below 50° F (10° C) but will remain above 40° F (5° C) during paving and the substrate temperatures are 50° F (10° C) and rising, place the PCSS with the approval of Engineer and add manufacturer approved accelerators to the mix.

Take care when placing the PCSS if the substrate temperature exceeds 130° F (50° C). Closely monitor application temperatures of the substrate above 130° F (50° C) for performance during the course of application. Any observable defects occurring as a result of extreme temperature should be cause for immediate halting of placement operations.

Where the ambient paving air temperature is going to exceed 90° F (32° C) consider use of cold water and ice for the blending operation. Where the provision of cold water or replacing the part of the water requirement with ice is not possible, then use a retarder with the mix.

The substrate that is to receive the PCSS system shall be cleaned of sand, dirt, dust, rock, or any other debris that could prevent proper adhesion. Clean and prepare the surface by power broom, scraping, compressed air or sandblasting, high pressure water, or other approved

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PAVEMENT MARKINGS

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methods in conformance with ASTM D4263 as necessary to assure bonding between the PCSS surface course and the substrate. Do not start PCSS operations until the surface is in a condition as recommended by the manufacturer and approved by the Engineer. The Contractor at its expense shall correct any/all surface damage resulting from cleaning/preparation work, as directed by the Engineer.

All substrate receiving PCSS shall be free of potholes, spalling, or other areas of structural deterioration. If identified in the plans, or directed by the Engineer, excavate all such areas to a depth where the substrate is structurally sound and repair with an approved method. Report structurally deficient areas not identified for repair in the plans to the Engineer.

The Contractor shall lay out all pavement marking areas and then for review by the Engineer. The Engineer shall approve the marking layout prior to placement of material.

Deposit PCSS uniformly on the substrate by roto-stator spray equipment. Use a spray apparatus device approved by the manufacturer and having the capability of mixing the materials at a rate to insure continuous spray operations.

Stenciled Pavement: This design requires a base coat of the material to be applied by squeegee or spray on top of asphalt or concrete pavement. Concrete pavement may require shot blasting to roughen the surface to ensure proper bonding. The base coat provides a grout line color plus seals the surface. Once the base coat has cured, apply the specified stencil pattern, and spray the topcoat. Remove stencil when the topcoat has reached the proper consistency and allow coating to cure. Cure to traffic time is approximately 2 hours at 70 degrees. The total cured thickness should be between 1/8" and 3/16".

The stencils should be a plastic or paper pattern consistent with the design of the crosswalks.

Non-Patterned Application: This design uses a colored or base color coating without a decorative pattern. Apply the material to the asphalt or concrete pavement using roto-stator spray apparatus. Concrete pavement may require shot blasting to roughen the surface to ensure proper bonding. A smooth or textured surface can be created. A textured surface is achieved by adding aggregate to the mix or distributing a fine aggregate to the surface after application as specified in the plans. Cure to traffic time is approximately 2 hours at 70 degrees. The total cured thickness should be between 1/8" and 3/16".

Curing and Opening to Traffic: The Contractor shall take care to protect the PCSS surface course from traffic until the area is sufficiently cured. Curing time will vary depending on ambient and surface temperatures. Do not open the PCSS to traffic until it has reached sufficient compressive strength and vehicular traffic will not damage the surface. Obtain approval for opening from a representative of the manufacturer, the installer, or the Engineer. The Contractor at its expense shall correct any damage to the PCSS surface resulting from failure to protect it or open it to traffic without approval or proper cure.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PAVEMENT MARKINGS

AA:TCA

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1/30/24

Measurement And Payment

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

Pay Item	Pay Unit
DS_Pavt Mrkg, Polyurea, 18 In., White.....	Feet
DS_Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Square Foot

DS_Pavt Mrkg, Polyurea, 18 In., White will be measured in place and paid for at the contract unit price per linear foot which price shall be payment in full for all labor, equipment, and materials as specified in this provision to accomplish this work.

DS_Pavt Mrkg, Polymer Cement Surface, Bike Lane Green will be measured in place and paid for at the contract unit price per square foot, which price shall be payment in full for all labor, equipment, and materials as specified in this provision to accomplish this work.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
MODULAR CURB SYSTEM

HRC: NBN

1 of 1

4/24/2024

a. Description

This work consists of furnishing and installing all components of the Modular Curb System as shown on the plans or as directed by the Engineer. The Modular Curb System shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 810 and 919 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Modular Curb System shall be manufactured by Qwick Kurb, Inc. or an approved equal by the Engineer. The model includes the Continuous Base Mid Span (L60), Continuous Base Front Span (L61), Continuous Base Rear Span (L62), Big Bollard (L125SHM), and all associated hardware that includes, but not limited to, screws, nuts, washers, bolts, flex boots, marker mounts, pavement anchors, and connection hooks.

The Big Bollard shall be white with yellow reflective sheeting.

c. Construction

The Modular Curb System shall be laid out for approval by the Engineer before installation. The Modular Curb System shall be placed in the roadway and gapped out at intersections (cross streets and driveways) as shown on the plans. The Continuous Base and Big Bollard shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Continuous Base Mid Span L60	Ea
DS_Continuous Base Front Span L61.....	Ea
DS_Continuous Base Rear Span L62	Ea
DS_Big Bollard MASH L125SHM.....	Ea

DS_Continuous Base __ Span __ and **DS_Big Bollard MASH L125SHM** will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
BIKEWAY DELINEATOR POST

HRC: NBN

1 of 1

4/24/2024

a. Description

This work consists of furnishing and installing all components for the Bikeway Delineator Post as shown on the plans or as directed by the Engineer. The Bikeway Delineator Post shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 807 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Bikeway Delineator Post shall be manufactured by Pexco or an approved equal by the Engineer. The model includes the City Post SM Surface Mount, Standard Top, Sheeting, and all associated hardware that includes, but not limited to, Anchor Bolts.

The Bikeway Delineator Post shall be 28 inches in height and 3 inches round with the bolt-down design. The color shall be black with white sheeting or yellow with gold sheeting as specified on the plans.

c. Construction

The Bikeway Delineator Post shall be laid out for approval by the Engineer before installation. The Bikeway Delineator Post shall be placed in the roadway, buffer space, bike lane, or cycle track as shown on the plans. The Bikeway Delineator Post shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Bikeway Delineator Post Black.....	Ea
DS_Bikeway Delineator Post Yellow	Ea

DS_Bikeway Delineator Post __ will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
STEEL POST

AA:JKA

1 of 1

04/23/24

- a. Description.** This work consists of furnishing and installing foundation pedestals as shown on the plans or as directed by the Engineer. The foundation pedestals shall be in accordance with Section 810 and associated sections for materials of the *Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction*.
- b. Materials.** The Contractor shall furnish materials in accordance with Subsection 810.02, of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except where otherwise noted.
- c. Construction.** The **DS_Post, Steel, 3 lb** shall be installed in accordance Subsection 810.03 and of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction, except where otherwise noted.
- d. 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>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
DS_Post, Steel, 3 lb.....	Foot

The unit prices for fabricated items include the cost of providing dimensional information for the relevant fabricated item.

The Engineer will measure **DS_Post, Steel, 3lb** to the nearest commercial length required. The City will not pay for the portion of posts installed deeper than the depth shown on the plans, unless authorized by the Engineer.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC, PEDESTRIAN, AND BIKE SIGNAL

HRC: NBN

1 of 2

4/29/2024

a. Description

This work consists of furnishing and installing all components of the Traffic, Pedestrian, and Bike Signal as shown on the plans or as directed by the Engineer. The Traffic, Pedestrian, and Bike Signal shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 820 and 921 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic, Pedestrian, and Bike Signal shall be manufactured using MDOT standard plans (SIG-XXX-X) and/or engineering judgment. The model includes the Conduit, Cable, Service Disconnect, Light Standard Arm, Pedestal, Foundation, Signal, Casing, Mast Arm, and all associated hardware, that includes but not limited to, anchor bolts, fittings, mounting brackets, and wiring.

The Conduit, Cable, and Service Disconnect shall meet the requirements as stated in Section 818 of the MDOT Standard Specifications for Construction.

The Light Standard Arm Removal and Salvage shall meet the requirements as stated in Section 819 of the MDOT Standard Specifications for Construction.

The Pedestal, Foundation, Signal, Casing, and Mast Arm shall meet the requirements as stated in Section 820 of the MDOT Standard Specifications for Construction.

c. Construction

The Traffic, Pedestrian, and Bike Signal shall be placed, taken out, or saved in the intersection or road segment as shown on the plans. The Traffic, Pedestrian, and Bike Signal shall be installed, removed, or salvaged per MDOT 2020 Standard Specifications for Construction and standard plans (SIG-XXX-X).

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Conduit, Directional Bore, 2, 3 inch	Ft
DS_Conduit, DB, 1, 1 1/2 inch	Ft
DS_Conduit, DB, 1, 3 inch	Ft
DS_Conduit, DB, 2, 3 inch	Ft

DS_Conduit, DB 4, 3 inch	Ft
DS_Cable Pole, TS and Sec, Disman	Ea
DS_Cable, Sec, 600V, 1, 3/C#6	Ft
DS_Wood Pole, Rem	Ea
DS_Serv Disconnect	Ea
DS_Serv Disconnect, Rem	Ea
DS_Wood Pole, Fit Up, TS and Sec Cable Pole	Ea
DS_Light Std Arm, Rem and Salv	Ea
DS_Controller and Cabinet, Rem	Ea
DS_Controller Fdn, Base Mount	Ea
DS_Controller Fdn, Rem	Ea
DS_Pedestal, Alum	Ea
DS_Pedestal, Fdn	Ea
DS_Pedestal, Fdn, Rem	Ea
DS_Pedestal, Rem	Ea
DS_Pushbutton, Pedestal, Alum	Ea
DS_Pushbutton, Rem	Ea
DS_Span Wire, Rem	Ea
DS_TS, Pedestrian, Bracket Arm Mtd, Rem	Ea
DS_TS, Pedestrian, Pedestal Mtd, Rem	Ea
DS_TS, Span Wire Mtd, Rem	Ea
DS_TS, Pedestrian, One Way Pedestal Mtd, Salv	Ea
DS_TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	Ea
DS_TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	Ea
DS_Bracket, Truss, With 12 Foot Arm	Ea
DS_Casing	Ft

DS_Conduit, __, __, __; DS_Cable Pole, TS and Sec, Disman; DS_Cable, Sec, 600V, 1, 3/C#6; DS_Wood Pole, Rem; DS_Serv Disconnect; DS_Serv Disconnect, Rem; DS_Wood Pole, Fit Up, TS and Sec Cable Pole; DS_Light Std Arm, Rem and Salv; DS_Controller and Cabinet, Rem; DS_Controller Fdn, Base Mount; DS_Controller Fdn, Rem; DS_Pedestal Alum; DS_Pedestal, Fdn; DS_Pedestal, Fdn, Rem; DS_Pedestal, Rem; DS_Pushbutton, Pedestal, Alum; DS_Pushbutton, Rem; DS_Span Wire, Rem; DS_TS, Pedestrian, __, Rem; DS_TS, Span Wire Mtd, Rem; DS_TS, Pedestrian, One Way Pedestal Mtd, Salv; DS_TS, Pedestrian, __ Pedestal Mtd (LED) Countdown; DS_Bracket, Truss, With 12 Foot Arm; and **DS_Casing** will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
LIGHT STANDARD ARM, INSTALL SALVAGED

HRC: NBN

1 of 6

4/29/2024

a. Description. This work consists of installing an existing, salvaged light standard arm as specified herein and as shown on the plans. Ensure this work is done in accordance with the requirements of section 819 of the Standard Specifications for Construction, the details shown on the plans, and this special provision.

b. Materials. Furnish material in accordance with subsection 819.02 of the Standard Specifications for Construction.

Ensure nuts and washers are in accordance with subsections 908.14.A and 908.14.B of the Standard Specifications for Construction.

c. Construction. Install light standard arms and luminaires in accordance with subsections 819.03.B and 819.03.C of the Standard Specifications for Construction, respectively. Install the light standard arm and luminaire on the light standard shaft per the manufacturer's recommendation. All electrical connections must meet the *NEC* requirements and any applicable local electrical codes.

Coat exposed portions of hardware with an epoxy and urethane coating system in accordance with subsection 715.03.D.1 of the Standard Specifications for Construction. Use a black colored urethane meeting color number 17038 of Federal Standard 595C from the Qualified Products List (915).

Repair any damages to the galvanized coatings of any product used per subsection 716.03 of the Standard Specifications for Construction. Any repair costs incurred for the repairs are the responsibility of the Contractor.

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

Pay Item	Pay Unit
Light Std Arm, Install Salv.....	Each

Light Std Arm, Install Salv includes the cost of the anchor bolts and other miscellaneous hardware to install the light standard arm. The foundation, luminaire, and light standard shaft will be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PUSHBUTTON AND SIGN, SALVAGE

HRC: NBN

1 of 1

4/24/2024

a. Description. This work consists of removing, storing, and reinstalling an existing pushbutton and sign at locations shown on the plans.

This work includes removal, storing and installation of interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit, and any other material required to ensure a complete removal and installation.

b. Materials. None specified.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer. Remove an existing pushbutton and sign, store salvaged materials in a protected and clean environment, and re-install the materials.

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

Pay Item	Pay Unit
DS_Pushbutton and Sign, Salv	Each

DS_Pushbutton and Sign, Salv includes removing a pushbutton, and sign if one is present, storing the removed materials on site and reinstalling materials at a location shown on the plans. This pay item includes removing and re-installing, as applicable, interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit and any other material required to ensure a complete removal and installation.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
ACCESSIBLE PEDESTRIAN SIGNAL SYSTEM

HRC: NBN

1 of 6

4/25/2024

a. Description. This work consists of either furnishing and installing an accessible pedestrian signal system and push button station(s) or removing a system and push button station(s) at locations as shown on the plans.

The following terminology is used in this special provision.

1. Accessible pedestrian signal system, or system hereafter, refers to central control unit (CCU) and multiple push button stations.

2. CCU, refers to the unit installed in an existing traffic signal controller cabinet, frame, and all required mounting hardware and the configurator. The CCU is the power supply and signaling interface, between the intersection traffic signal controller and the push button stations. Configurator refers to a handheld, password secure, infrared device capable of setting and resetting all push button stations on the intersection from a single push button station (global updating). Each CCU will control multiple push button stations. A complete system includes one CCU.

3. Push button station (PBS), refers to a Public Rights-of-Way Accessibility Guidelines (PROWAG) compliant push button station including signs when specified, installed at crosswalk termini, and all required mounting hardware. A system can include 2 to 12 PBS (maximum of 3 per phase).

b. Materials. Furnish an accessible pedestrian signal system including CCU and PBS meeting the requirements of this subsection. Furnish all hardware and other appurtenant materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. Accessible Pedestrian Signal System.

A. Furnish an accessible pedestrian signal system from the following list.

(1) Polara Navigator.

(2) Approved equal (AE). Ensure the AE is evaluated, tested, and approved per the MDOT New Traffic Signal Device Product Review Guidelines. The review time is not justification to delay the project.

2. The system must:

A. Furnish various audible features including but not limited to locator tones. All

locator tones must emanate from push button stations and be synchronized;

B. Have multiple language capability, selectable by user, and able to play an emergency preemption message;

C. Be able to self-test and report any faults to the traffic controller;

D. Furnish the following audible feature, each with a minimum and maximum volume independently settable using the configurator:

(1) One locating tone;

(2) Five walk sound choices (field selectable);

(3) Three pedestrian - clearance sound choices (field selectable) ensuring one of which is an audible countdown;

(4) Direction of travel (as standard feature with extended push); and

(5) Information message (custom feature with extended push).

E. Automatically adjust audible features to ambient noise levels over a 60 decibel (dB) range; and

F. Mute sounds on all crosswalks except the activated crosswalk (selectable feature).

3. The CCU must meet the following requirements:

A. Be compatible with solid-state pre-timed or actuated traffic signal control equipment and cabinet environments;

B. Be capable of controlling up to and including 12 PBSs and controlling up to and including 4 pedestrian phases;

C. Receive timing from the walk and don't walk signals;

D. Have additional advanced configurations available by using general purpose inputs and outputs;

E. Ensure full optical isolation of all inputs and outputs and include transient voltage protection as follows:

(1) General Purpose Inputs. 10 to 36 VAC/VDC peak with a 10 milli Ampere (mA) maximum.

(2) General Purpose Outputs and Pedestrian Outputs. 36 VAC/VDC peak, 0.3 Ampere (A) solid state fused contact closure.

(3) Fault Output. Normally open and closed relay contacts, 125 VAC/VDC, 1 A maximum.

(4) Pedestrian Hand/Walking Person (Walk/Don't Walk) Inputs. 80-150 VAC/VDC, 5 mA maximum.

(5) A, B, C, D PBS Power Outputs. Nominal 22 VDC, short circuit protected, auto recovering.

(6) Environment Operation and Storage Range. -30 °F to 165 °F (-35 °C to 74 °C), 0 to 100 percent Humidity, Non-condensing.

(7) Line Power. 25 Watt (W) to 75 W typical, 120 W peak with 8 PBSs.

F. Include a 50-pin connector and cable that plugs into the CCU for termination to the traffic signal controller terminal facilities. Ensure the connector is a Positronic MD50F20Z0X or equivalent, provided with 20-24 gauge wire, which complies with the requirements of *UL 1061*.

4. The PBS must meet the following requirements:

A. Design each PBS in accordance with the following:

(1) Produce sounds emanating from the back of the unit via an 8 ohms 15 W, weather-proof speaker protected by a vandal resistant screen;

(2) Require only two wires coming from the traffic control cabinet for each phase/crosswalk;

(3) Include push buttons which are audibly locatable and equipped with tactile arrows pointing in the same direction as the associated crosswalk;

(4) PROWAG compliant, cast aluminum, nickel plated, powder coated with raised tactile arrow on button;

(5) Include solid-state switch rated to 20 million activations (minimum); and

(6) Include a two inch button with a tactile raised directional arrow on the button that can be changed to one of four directions to coincide with the direction of travel of the associated crosswalk.

B. The PBS must include the following standard features:

(1) The arrow/button must vibrate during the walk period, following a button push;

(2) Confirm a button push via a "vibratactile" bounce and a red LED, clearly visible in direct sunlight, which latches ON when the button is pushed;

(3) Indicate the direction of travel with extended button push;

(4) Transmit a standard locating tone, custom sound, or verbal countdown during pedestrian clearance;

(5) Ensure sounds automatically adjust to ambient over 60 dB range;

- (6) Allow sounds to have minimum and maximum volume set independently;
- (7) Synchronize all sounds;
- (8) Extended button push can turn on, boost volumes, and/or mute all sounds except those on activated crosswalk; and
- (9) Include message to clear the intersection when preemption is activated.

C. Ensure the PBS is capable of custom message and sound options for the following features:

- (1) Custom locating tone;
- (2) Custom clearance sound;
- (3) Custom walk sounds/message;
- (4) Informational message;
- (5) Multiple languages (up to three, selected by user); and
- (6) Street name in Braille on the sign.

D. Ensure the PBS is fabricated in accordance with the following:

- (1) Available in three standard colors: Black, Green, and Yellow. The default color is yellow unless specified otherwise;
- (2) Have an operational temperature range of -40 °F to 165 °F (-40 °C to 60 °C);
- (3) Ensure the housing material is cast aluminum;
- (4) Chemically filmed and powder coated;
- (5) Face plate constructed of powder coated aluminum with ink marking; and
- (6) Have pre-drilled mounting holes to hold a 9 inch by 12 inch, R10-3b, 3d, or 3e pedestrian sign.

E. PBS LED display operational requirements:

- (1) Light when the button is pushed and remain lit until the next walk phase.
- (2) Luminous intensity greater than 1200 maximum continuous discharge (mcd), sunlight visible, ultra bright red, with a 160 degree viewing angle.

F. PBS audio operational requirements:

- (1) Audio amplifier power output of 10 W rms into 8 ohms.

(2) Volume control automatic adjustment range of 28 dB (maximum).

(3) Microphone ambient noise frequency range of approximately 170 Hertz (Hz) to 2.3 Kilo Hertz (kHz).

(4) Button tone provides a brief “tick” to confirm each button push.

(5) Audible locating tone operates during the pedestrian-clearance and don’t walk interval at an 880 Hz plus harmonic, 0.1 second duration, 1 second interval.

(6) Audible “chirp” operates only during walk intervals at 2700 Hz to 1700 Hz, 0.2 second duration, 1 second interval.

(7) Audible “cuckoo” operates only during walk intervals at 1250 Hz to 1000 Hz, 0.6 second duration, 1.8 second interval.

5. Ensure the configurator meets the following requirements:

A. Be a handheld, password protected, remote that configures the CCU or an individual PBS;

B. Communicate via infrared technology with the CCU and the PBS with an interactive operation to select various configuration options at the intersection(s), by standing adjacent to either the CCU or a PBS;

C. Feature a LCD display, with two 16-character lines, with backlight and adjustable contrast;

D. Be powered by four AA 1.5 Volt cell batteries, include a low battery warning, and have an auto or manual shut-off switch; and

E. Have an operating temperature range of 32 °F to 122 °F (0 °C to 50 °C).

6. Warranty. Furnish a manufacturer’s warranty, transferable to the MDOT, that the supplied materials will be free from all defects in materials and workmanship for a 2-year period from the date of shipment. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing date of shipment, to the Engineer at the time of delivery.

c. Construction. Complete this work in accordance with sections 818 and 820 of the Standard Specifications for Construction, typical signal construction details, and this special provision.

1. Furnish and Install. Furnish and install a system at an intersection as shown on the plans and in accordance with the *MMUTCD*. Ensure that the arrow on the PBS button(s) points in the direction of pedestrian travel for the associated crosswalk.

2. Remove. Remove an accessible pedestrian signal system or a PBS and store, as directed by the Engineer, or dispose of all removed materials.

A. Where removal of an accessible pedestrian signal system is specified on the plans, remove the CCU, hardware, cable, connectors, and other appurtenant material required to complete the work.

B. Where removal of a PBS is specified on the plans, remove the PBS, sign, associated assembly, hardware, cable, connectors, and other appurtenant material required to complete the work.

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

Pay Item	Pay Unit
DS_Pedestrian Signal System, Accessible.....	Each
DS_Push Button Station.....	Each
DS_Push Button Station and Sign.....	Each
DS_Pedestrian Signal System, Accessible, Rem	Each
DS_Push Button Station, Rem.....	Each

1. **DS_Pedestrian Signal System, Accessible** includes installing the accessible pedestrian signal system at an intersection, including a CCU, configurator, hardware, fittings, conduit(s), wiring, grounding and ground rod(s), and all appurtenant material required to complete the work.

2. **DS_Push Button Station** and **DS_Push Button Station and Sign** includes installing the push button station, sign (when specified), associated assembly, brackets, hardware, fittings, conduit(s), cable to controller, wiring, grounding, ground rod(s), and all other appurtenant material required to complete the work.

3. **DS_Pedestrian Signal System, Accessible, Rem,** includes removing an accessible pedestrian signal system at an intersection including a CCU, configurator, hardware, fittings, hardware, cable, connectors, conduit(s), grounding, and other material required to complete the work. **DS_Pedestrian Signal System, Accessible, Rem** also includes storage or disposal of removed material.

4. **DS_Push Button Station, Rem,** includes removing a push button station, sign, associated assembly, brackets, hardware, fittings, cable, connectors, conduit(s), ground, and other material required to complete the work. **DS_Push Button Station, Rem** also includes storage or disposal of removed material.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC SIGNAL BACKPLATE

HRC: NBN

1 of 2

4/25/2024

a. Description. This work consists of completing one or more of the following work types at location(s) shown on the plans:

1. Furnishing and installing a traffic signal backplate.
2. Removing and disposing of an existing traffic signal backplate.
3. Removing, storing and reinstalling an existing traffic signal backplate.

As applicable, this work includes removal or installation of hardware, connectors, fittings and all material necessary to complete the work.

b. Materials. Material must meet sections 819, 820, and 921 of the Standard Specifications for Construction.

1. Provide a one-piece backplate for three or four section traffic signal heads as indicated on the plans or as directed by the Engineer. Ensure that five section (doghouse) signal head combinations are provided with no more than three vacuum formed pieces.
2. Provide backplates that are designed to precisely fit the manufacturer's signal heads and supplied with necessary hardware to attach the backplate to the signal.
3. Provide backplates that are vacuum formed from 0.125 inch thick black acrylonitrile butadiene styrene (ABS) plastic with a hair cell finish on the front side (facing approaching traffic) to reduce glare.
4. Provide backplates that are constructed with a minimum 5/8 inch flange on all sides to provide structural rigidity. Ensure the backplates are provided with a three inch corner radius.
5. Ensure that all backplates extend approximately five inches around the perimeter of the traffic signal combinations after installation.
6. Provide backplates with an *ASTM Type IV* reflective yellow tape border. Ensure that a one inch border is used with yellow signal heads and visors, and a two inch border is used with black signal heads and visors.
7. Warranty. Provide materials with a manufacturer's warranty/guarantee, transferable to MDOT, that the supplied materials will be free from all defects in materials and workmanship for the stated time period from the date of shipment. Supply the Engineer with any warranty or guarantee documents from the manufacturer and a copy of the invoice showing date of

shipment.

c. Construction. Complete this work in accordance with sections 819 and 820 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specification for Construction.

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

Pay Item	Pay Unit
DS_Backplate, TS.....	Each
DS_Backplate, TS, Rem.....	Each
DS_Backplate, TS, Salv.....	Each

1. **DS_Backplate, TS** includes installing the backplate on existing or new signal head(s) at location(s) shown on the plans where installation is specified. Furnish and install a traffic signal backplate, as indicated on the plans or as directed by the Engineer.

2. **DS_Backplate, TS, Rem** includes removing the existing backplate, hardware, and other appurtenances, required for a complete removal where removal is specified. Dispose of removed materials.

3. **DS_Backplate, TS, Salv** includes removing the existing backplate, hardware, and other appurtenances required for a complete removal, storing salvaged materials in a clean environment, and reinstalling the materials where salvage is specified. Complete reinstallation in accordance with subsection c. of this special provision.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
TRAFFIC SIGNAL MAST ARM POLE AND MAST ARM

HRC: NBN

1 of 4

4/25/2024

a. Description. This work consists of furnishing, fabricating, and erecting a traffic signal mast arm pole and mast arm as shown on the plans, in accordance with the standard specifications, and as specified herein. This special provision is for an anchor base type steel mast arm pole, including mast arms, and other associated hardware required to complete the work.

b. Material. Furnish material in accordance with sections 906 and 908 (as modified by 20SP-908A - Miscellaneous Metal Products Revisions) of the Standard Specifications for Construction and this special provision.

Material specifications for the traffic signal mast arm pole and mast arm are included in Table 1.

Table 1: Material and Coating Specifications

Component	Specifications
Pole Tube	<i>ASTM A595/A595M GR A or ASTM A572/A572M GR 50</i>
Mast Arm Tube	<i>ASTM A595/A595M GR A or ASTM A572/A572M GR 50</i>
Mast Arm Clamp	<i>ASTM A36/A36M</i>
Gusset Plate	<i>ASTM A36/A36M</i>
Hand Hole Frame	<i>ASTM A705/A705M or ASTM A572/A572M GR 50</i>
Lifting Pipe	<i>ASTM A53/A53M GR B or ASTM A501/A501M</i>
Hand Hole Cover	<i>ASTM A1011/A1011M GR 36</i>
Pole Top	<i>ASTM B26/B26M (356F or 43)</i>
Stainless Steel Hardware	<i>AISI 300 SERIES (18-8)</i>
Luminaire Arm Bolts	<i>ASTM F3125/F3125M GR A325</i>
Mast Arm Studs	<i>ASTM A449</i>
Mast Arm Shear Bolts	<i>ASTM F3125/F3125M GR A325</i>
“ANCO” Lock Nuts or Equivalent	<i>ASTM A563 GR DH</i>
Flat Washers	<i>ASTM F436/F436M</i>
Lock Washers	<i>ANSI B18.21.1</i>
Base Plate	<i>ASTM A36/A36M</i>
Bottom Steel Template	<i>ASTM A36/A36M</i>
Back Plate	<i>ASTM A36/A36M</i>
Mast Arm Plate	<i>ASTM A36/A36M</i>
Steel Plate and Shape Finish	<i>ASTM A123/A123M</i>
Hardware Finish	<i>ASTM A153/A153M</i>

Telescopic Field Splice Bolt	ASTM A307
C-Hook	ASTM A36/A36M
J-Hook	ASTM A36/A36M

Use high strength bolts, nuts, and washers in accordance with subsection 906.07 of the Standard Specifications for Construction.

Blast clean fabricated components with a nominal thickness greater than 1/2 inch to remove mill scale and welding slab before galvanizing. For components with a nominal thickness of 1/2 inch or less, blast cleaning can be waived if the galvanizer inspects the material and provides a written statement to the fabricator that blast cleaning is not required. Otherwise blast cleaning is required.

Furnish a vibration mitigation device as shown on the plans. Ensure the device is an active, non-aerodynamic vibration damper system. Ensure the installed device can reduce the loaded maximum vertical movement at the tip of the arm to 8 inches measured from the highest to the lowest point of deflection at wind speeds of 5-20 mph. The device must furnish and the documentation must show an 85 percent or greater excitation reduction for the structures where the device is being installed. Ensure effectiveness is proven through an analytical model and approved by the Engineer. Test the device to withstand over 15 million large amplitude cycles with no deterioration of the dampening performance. Ensure the device can dampen large displacements and small displacements, be self-adapting, and not require structure-specific tuning.

Structural steel material used to fabricate the traffic signal mast arm pole and mast arm will be accepted based on "Fabrication Inspection" per the *MQAP Manual*. Mast arm studs, mast arm shear bolts, and luminaire arm bolts will be accepted based on "Test" per the *MQAP Manual*.

c. Fabrication. Fabricate and weld in accordance with section 707 of the Standard Specifications for Construction.

1. Fabricate structure in accordance with City Standard Plan 50400-B83.
2. Ensure anchor bolt pattern follows Traffic Signal Pole Foundation City Standard SD-SL-2.
3. Ensure the pole and arm tubes have a uniform taper.
4. Ensure the pole and mast arm tubes are single ply and round or 16-sided.
5. Tolerance for overall length of pole tube and arm tube(s) is $\pm 1/8$ inch. Tolerance for sweep and camber of pole tube and arm tube(s) is 1/8 inch per 10 foot. Tolerance for twist of pole tube and arm tube(s) is ± 10 degrees.
6. The pole and mast arm tubes cannot have more than two longitudinal welds. Roll or grind flush the longitudinal seam weld. Transverse welds in the pole and arm tubes are prohibited.
7. Attach the arm tube to a mast arm plate by a full penetration weld. Shop drill holes in mast arm back plate and shop weld pipes to the mast arm back plate.
8. Ensure all welds are 100 percent VT inspected by an AWS CWI.
9. Ensure all fillet welds are MT inspected in accordance with subsection 707.03.D.12 of the Standard Specifications for Construction, except testing frequency must be 25 percent.

10. Ensure all PJP longitudinal seam welds are MT inspected in accordance with subsection 707.03.D.12 of the Standard Specifications for Construction, except testing frequency must be 10 percent.

11. Ensure all CJP welds are 100 percent UT inspected per subsection 819.03.D.2 of the Standard Specifications for Construction. Acceptance criteria for material thickness equal to or greater than 5/16 inch will be in accordance with the cyclically loaded nontubular connections in tension criteria stated in *AWS Clause 6*.

12. Evenly space the pole base plate holes so the pole may be bolted to a concrete foundation as shown on the plans. Finish the lower surface of the base plate flat and at 90 degrees to the pole axis.

13. Furnish a handhole opening and cover. Weld a reinforcing frame to the pole for the handhole opening. Ensure the placement of the hand hole does not reduce the strength of the pole. Securely fasten the handhole cover using stainless steel hex head cap screws or by an approved locking device.

14. Furnish a suitable pole top with means for securing it to the top of the pole.

15. Furnish a hook or other suitable device for the support of cable on the inside of the pole near the top.

16. Weld square stock that has been drilled and tapped to the inside of the handhole so that it is readily accessible from the handhole for grounding purposes.

17. Fabricate the arm to pole upright connection to compensate for mast arm deflection. Show this detail on shop drawings for approval by the Engineer.

18. The manufacturer must submit all the necessary documentation and testing of the vibration mitigation device to prove the device is effective for their structures.

19. Ensure steel plates and shapes are hot-dip galvanized in accordance with subsection 716.03.B.4 of the Standard Specifications for Construction. If mast arms are required to have a duplex coating, ensure the coating is in accordance with 20SP-716A - Coating of Galvanized Lighting, Signal, Sign, and Miscellaneous Support Structures.

20. Submit shop drawings in accordance with subsection 707.03.A of the Standard Specifications for Construction.

21. Ultrasonically test (UT) the toe of the weld connecting the upright to the transverse base plate after galvanizing at each corner of multi-sided uprights. Perform UT in accordance with AWS D1.1 using a small angle beam transducer capable of detecting shallow toe cracks.

d. Erection. Tighten anchor bolts in accordance with subsections 810.03.N.2 and 810.03.N.3 of the Standard Specifications for Construction (as modified by 20SP-810H - Permanent Traffic Signs and Supports Revisions).

Bolt the arm tube to the pole tube as shown on the plans. Field drill holes through the pole tube using the pipes shop welded to the mast arm back plate as guides. Do not field drill the mast arm back plate. Repair the galvanization coating after any field drilling. Control distortion of flange

plates for flatness to assure full contact between mating surfaces in an unbolted, relaxed condition.

Tighten pole cap, mast arm cap, and luminaire arm high strength bolts to a snug tight condition in accordance with 707.03.E.6.c of the Standard Specifications for Construction.

Furnish the Engineer 5 working days notification prior to the start of installation so they may witness or monitor the contractor's activities.

e. Construction. Ensure all work complies with sections 818, 820, and subsection 810.03 (as modified by 20SP-810H – Permanent Traffic Signs and Supports Revisions) of the Standard Specifications for Construction, the applicable signal construction plan sheets, and this special provision.

Perform repairs to galvanized surfaces in accordance with subsection 716.03.E of the Standard Specifications for Construction.

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

Pay Item	Pay Unit
DS_Mast Arm Pole, Cat _____	Each
DS_Mast Arm, __ foot, Cat _____	Each

DS_Mast Arm Pole, Cat __ and **DS_Mast Arm, __ foot, Cat __** includes furnishing all materials, fabrication, shop cleaning, galvanizing, shipping, and erection. Payment for providing and installing the vibration mitigation device where required and submitting all required information is included in the pay item **DS_Mast Arm, __ foot, Cat __**.

No extension of time or additional compensation will be granted due to obtaining the proper A/SC certifications and/or endorsements required for this project.

Construction of the foundation will be included in other items.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAST ARM POLE FOUNDATION

HRC: NBN

1 of 1

4/25/2024

a. Description

This work consists of furnishing and installing all components of the Mast Arm Pole Foundation as shown on the plans or as directed by the Engineer. The Mast Arm Pole Foundation shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 718, 818, 819, and 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Mast Arm Pole Foundation shall be manufactured following the Traffic Signal Pole Foundation City Standard SD-SL-2.

c. Construction

The Mast Arm Pole Foundation shall be laid out for approval by the Engineer before installation. The Mast Arm Pole Foundation shall be placed at the intersection as shown on the plans. The Mast Arm Pole Foundation shall be installed per Traffic Signal Pole Foundation City Standard SD-SL-2.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Mast Arm Pole Fdn, Modified	Ft

DS_Mast Arm Pole Fdn, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
LONG LIFE LIGHT EMITTING DIODE TRAFFIC SIGNAL

HRC: NBN

1 of 2

4/25/2024

a. Description. This work consists of installing long life LED traffic signals. Adhere to the standard specifications for all other requirements for traffic signals not specifically listed in the requirements of this special provision.

b. Materials. Ensure materials are in accordance with sections 918 and 921 of the Standard Specifications for Construction, the *MMUTCD* and the requirements of this special provision.

1. LED Module. Furnish LED modules consisting of high flux LEDs mounted on a metal core circuit board and LED electrical contacts soldered to the circuit board. Furnish all power supplies with conformal coating for additional protection and solid connections (no connectors) between driver and LED light engine. Furnish non-electrolytic capacitors to enhance long life.

Furnish green LEDs that use indium gallium nitride technology. Furnish green LED traffic signal modules that do not illuminate if the applied voltage is less than 35 VAC.

Furnish yellow LEDs that use indium gallium nitride technology, absorbing substrate or transparent substrate. Furnish yellow LED traffic signal modules that do not illuminate if the applied voltage is less than 35 VAC.

Furnish LED modules for traffic signals with the following maximum power consumption:

A. Eight inch and 12-inch red ball traffic signal modules with a maximum power consumption no greater than 8 watts and 9 watts respectively, at 120 VAC, at 77 °F;

B. Eight inch and 12-inch yellow ball traffic signal modules with a maximum power consumption no greater than 8 watts and 13 watts, respectively, at 120 VAC, at 77 °F;

C. Eight inch and 12-inch green ball traffic signal modules with a maximum power consumption no greater than 7 watts and 9 watts, respectively, at 120 VAC, at 77 °F;

D. Twelve inch red arrows with a maximum power consumption no greater than 7 watts at 120 VAC, at 77 °F;

E. Twelve inch yellow arrows with a maximum power consumption no greater than 14 watts at 120 VAC, at 77 °F; and

F. Twelve inch green arrows with a maximum power consumption no greater than 9 watts at 120 VAC, at 77 °F.

2. Lens. Furnish an LED signal module lens made from UV-stabilized polycarbonate. Use lenses that are color tinted red, yellow, and green. Furnish a hard-coated lens or a lens that otherwise complies with the material exposure and weathering effects requirements of SAE J576.

For arrows incorporate a black arrow mask behind the outer lens to define the arrow icon. Furnish an outer lens with raised optical detail on the inner surface to distribute the light rays to meet the intensity and distribution standards required by this subsection.

3. Operational Requirements. Furnish LED traffic signal modules that meet the minimum intensity requirements while operating from temperatures of -40 °F to 165 °F for 15 years.

4. Warranty. Furnish materials with a manufacturer’s warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Furnish and install the long life LED traffic signals as shown on the plans or as directed by the Engineer. All work must comply with sections 819 and 820 of the Standard Specifications for Construction and this special provision. Storage and/or disposal of removed material is included and must comply with section 204 of the Standard Specifications for Construction or as directed by the Engineer.

Install, direct, and mask the signal indication(s) in accordance with the manufacturer’s recommendation and the visibility requirements as directed by the Engineer.

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

Pay Item	Pay Unit
DS_TS, __ Way __ Mtd (LED), Long Life	Each
DS_TS, __ Way __ Mtd, __ (LED), Long Life	Each

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC SIGNAL CONTROLLER

HRC: NBN

1 of 1

4/25/2024

a. Description

This work consists of furnishing and installing all components of the Traffic Signal Controller as shown on the plans or as directed by the Engineer. The Traffic Signal Controller shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic Signal Controller shall be manufactured by Siemens or an approved equal by the Engineer. The model includes the Siemens m60 Series ATC for a NEMA-style cabinet and all associated hardware that includes, but not limited to, adaptor cables and connectors.

For further Traffic Signal Controller information, contact Shane Foster at Yunex Traffic, (586) 488-8073 or shane.foster@yunextraffic.com.

c. Construction

The Traffic Signal Controller shall be laid out for approval by the Engineer before installation. The Traffic Signal Controller shall be placed in the cabinet as shown on the plans. The Traffic Signal Controller shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Controller, NEMA, ATC Type, Modified	Ea

DS_Controller, NEMA, ATC Type, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item. Furnishing and delivering the controller to the City of Ann Arbor Signs and Signals for controller timing setup and transporting the controller from the maintaining agency to the job site for installation is also included in the corresponding pay item. City of Ann Arbor Signs and Signals is located at the Wheeler Service Center, 4251 Stone School Rd, Ann Arbor, MI 48108. Contact Signs and Signals Supervisor, Marc Moreno at (734) 794-6350 x 43322 or mmoreno@a2gov.org.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TRAFFIC SIGNAL CABINET

HRC: NBN

1 of 2

4/25/2024

a. Description

This work consists of furnishing and installing all components of the Traffic Signal Cabinet as shown on the plans or as directed by the Engineer. The Traffic Signal Cabinet shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Section 820 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Traffic Signal Cabinet shall be manufactured by Mobotrex or an approved equal by the Engineer. The model includes the Smart P Cabinet NEMA Size 6, and all associated hardware that includes, but not limited to, the PS-250 Heavy Duty Cabinet Power Supply from Eberle Design (EDI), BIU-700 NEMA TS-2 BUS Interface Unit from EDI, MMU2-16LEip with Ethernet Port Smart Monitor from EDI, SSS-87IO Data Sheet from PDC, SSF-87 Data Sheet from PDC, 295 Power Relay from Delta Controls, riser, and anchor bolt assembly.

For further Traffic Signal Cabinet information, contact Shane Foster at Yunex Traffic, (586) 488-8073 or shane.foster@yunextraff.com.

c. Construction

The Traffic Signal Cabinet shall be laid out for approval by the Engineer before installation. The Traffic Signal Cabinet shall be placed at the intersection as shown on the plans. The Traffic Signal Cabinet shall be installed per manufacturer recommendations.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Cabinet, NEMA Type, Modified	Ea

DS_Cabinet, NEMA Type, Modified will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item. Furnishing and delivering the cabinet to the City of Ann Arbor Signs and Signals for cabinet setup and transporting the cabinet from the maintaining agency to the job site for installation is also included in the corresponding pay item. City of Ann Arbor Signs and Signals is located at the

Wheeler Service Center, 4251 Stone School Rd, Ann Arbor, MI 48108. Contact Signs and Signals Supervisor, Marc Moreno at (734) 794-6350 x 43322 or mmoreno@a2gov.org.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TWO-WAY ILLUMINATED STREET NAME SIGNS, LIGHT EMITTING DIODE

HRC:NBN

1 of 3

04-25-24

a. Description. This work consists of installing a LED illuminated street name sign, which includes the associated assembly, brackets, hardware, fittings, cable, connectors, wiring, grounding, and all other material required to complete the work.

b. Materials. Material must meet sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. General Requirements. The sign assembly must consist of a 6 or 8 foot aluminum body with white LEDs. The sign assembly must consist of two faces, as specified. Overall sign dimensions must be $72\frac{3}{8}$ inches long by $22\frac{5}{16}$ inches high for the 6 foot sign and $96\frac{3}{8}$ inches long by $22\frac{5}{16}$ inches high for the 8 foot sign. Signs must be $10\frac{3}{4}$ inches deep at the top (including the drip edge) and $5\frac{7}{8}$ inches deep at the bottom. The 6 foot sign must weigh no more than 75 pounds and the 8 foot sign must weight no more than 90 pounds. When mounted, the sign must provide a five degree downward angle for increased visibility.

The body of the sign must consist of an aluminum housing. Extrude the top from 6063-T5 aluminum alloy with a minimum thickness of 0.140 inches. Ensure there are drip rails overhanging the sign face to prevent water from entering the electrical housing.

Extrude the bottom of the sign from 6063-T5 aluminum alloy with a minimum thickness of 0.09 inches. Cast the ends of the sign from 356 aluminum having a minimum thickness of 0.250 inches.

Continuously weld all seams for a weather tight seal. Locate four drain holes in the bottom of the body, two at each end of the sign.

Etch and prime the exterior of the sign in accordance with industry standards before receiving two color coats of industrial enamel. Ensure all fasteners and hardware are corrosion resistant.

Ensure the legend of the sign is as indicated on the plans.

Ensure the size of the sign is as indicated on the plans.

2. Door Requirements. The aluminum doors must have one side removable for access to the sign face. Each door must have a full length 0.040 inch by $1\frac{1}{8}$ inch open stainless steel hinge on the bottom edge. Secure the door from opening by six quarter turn air lock fasteners. Install PVC foam gaskets or a neoprene gasket, $\frac{5}{32}$ inch thick by 1 inch wide, to provide a watertight seal between the door and housing.

3. Sign Face Requirements. Construct the sign face of 0.125 inch thick Lexan (a transparent plastic (polycarbonate) of high impact strength) SG404-7329 white translucent polycarbonate. Ensure letter style is Clearview Highway 2W font with 12 inch upper case and

proportional lower case letters. Ensure the sign face legend background is translucent with vinyl green electrically cuttable film applied to the front of the sign face. Frame the legend by a white polycarbonate border.

4. Electrical. Design the LED case sign to operate on 120 Volt, 60 Hertz, single phase alternating current (AC) power. Ensure the input voltage is reduced and power-conditioning circuitry is provided so that the LED's current will operate at the manufacturer's recommended current.

The LED light module must consist of adequate LED's to provide a minimum of 200 nits or an equivalence of 660 lux over a -40 °F to 165 °F ambient temperature consistent with the *NEMA* temperature specifications. Ensure there are a sufficient quantity of white LEDs to uniformly illuminate the viewing area.

The LED light module must consist of a circuit board comprised of an insulate aluminum substrate, with a minimum thickness of 0.050 inch.

The LED light module must operate for a minimum of 50,000 hour life with no more than 30 percent lumen depreciation. The LED supplier must provide operational documentation, if requested, based on actual temperature measurements (taken after 12 continuous hours of operation) correlated against lumen depreciation and LED mortality curves.

Ensure the LED light engine electronics are entirely coated not thinner than 0.002 inch (dry), to adequately protect the light engine from moisture and corrosion. Ensure the LED module is Reduction of Hazardous Substances (ROHS) compliant.

Provide a sufficient quantity of white LED's to uniformly illuminate the view area. The failure of one LED must not reduce the light output by more than eight percent per foot of sign face.

Ensure circuit conductors and LED attachment adhesive is minimally 90 percent silver to ensure optimal electrical and thermal conductivity.

Attach the LED light module to the case sign housing in such a manner that it will remain properly in place during maintenance or retro-fit activities. The LED light module must pass the following tests per *NEMA* standards:

A. Thermal Shock Test. 85/-40 °F with 2 hour dwells for five cycles with a 2 hour presoak at -40 °F.

B. Salt Spray and Soak Test. The LED light module must endure 48 hours on continuous salt spray and 240 hours of salt-water soak.

Burn-in all LED light modules for 24 hours and certified for compliance by the manufacturer. Ensure the manufacturer's name, date of manufacture, and a QC tracking sticker are mounted on the inside of the LED light module.

The LED light modules must not exceed a 59 °F (15 °C) temperature rise under continuous operating conditions.

Provide power supplies rated for 100 watts by UL for Class 2 operation (24 VDC) and IP66 rated for outdoor use. Ensure two power supply are used for two-way signs. Ensure the

temperature rise of the LED panel does not exceed 59 °F (15 °C) under continuous operating conditions at the rated output.

5. Mounting Brackets. Mount the signs as specified on the plans.

6. Warranty. Provide materials with a manufacturer’s warranty/guarantee, transferable to MDOT, that the supplied materials will be free from all defects in materials and workmanship for the stated time period from the date of shipment. Supply the Engineer with warranty/guarantee documents from the manufacturer and a copy of the invoice showing the date of shipment.

c. Construction. Furnish and install, an LED street name sign, as indicated on the plans or as directed by the Engineer. Ensure work complies with sections 819 and 820 of the Standard Specifications for Construction and this special provision.

Design the wiring for 600 volts at 90 °F using a minimum #18 AWG stranded soft annealed copper wire. Secure all wiring using insulated wire compression nuts. Furnish a wire entrance junction box with the sign assembly which provides a weather-tight seal. No wiring is allowed within the optical cavity.

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

Pay Item	Pay Unit
DS_St Name Sign, Two Way, LED, __ foot	Each

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
ROADSIDE UNIT, REMOVE AND SALVAGE

HRC: NBN

1 of 1

4/25/2024

a. Description

This work consists of removing, storing, and reinstalling an existing Roadside Unit at the location shown on the plans.

This work includes removal, storing, and installation of interface equipment, mounting assembly, brackets, hardware, fittings, connectors, wiring, cable to controller, grounding, risers, conduit, and any other material required to ensure a complete removal and installation. The removal and salvage of the Roadside Unit shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

None specified.

c. Construction

The Roadside Unit shall be place on a pole as shown on the plans and as directed by the Engineer. Remove the existing Roadside Unit, store salvaged materials in a protected and clean environment, and reinstall the materials.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Roadside Unit, Rem and Salv	Ea
DS_Roadside Unit, Install Salv.....	Ea

DS_Roadside Unit, Rem and Salv and DS_Roadside Unit, Install Salv will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WIRELESS VEHICLE DETECTION SYSTEM

HRC: NBN

1 of 6

4/25/2024

a. Description. This work consists of completing one or more of the following work types at locations shown on the plans:

1. Furnishing and installing a wireless vehicle detection system (VDS) including serial port protocol (SPP) radios, master interface access point contact closure (APCC) card, extension (EX) cards, and Isolator Module.
2. Furnishing and installing a repeater (RP).
3. Furnishing and installing a vehicle sensor node (VSN).
4. Removing and disposing of an existing wireless VDS.
5. Removing, storing, and reinstalling an existing wireless VDS.
6. Removing and disposing of an existing RP.
7. Removing, storing, and reinstalling an existing RP.
8. Removing and disposing of an existing VSN.
9. Removing, storing, and reinstalling an existing VSN.

As applicable, this work includes removal or installation of mounting brackets, hardware, cable, connectors, grounding, sensors and orange epoxy and any other material required to ensure a complete removal or installation, as specified for a location.

b. Materials. Furnish materials, as directed by the Engineer, necessary to provide a complete and operating job. Furnish materials in accordance with sections 918 and 921 of the Standard Specifications for Constructions and this special provision.

1. Vehicle Detection System (VDS).
 - A. Furnish a VDS from the following list.
 - (1) Sensys Flexmag.
 - (2) Approved equal (AE). Ensure the AE is evaluated, tested, and approved per the MDOT New Traffic Signal Device Product Review Guidelines. The review time is not justification to delay the project.

B. A complete VDS consists of:

- (1) Master interface APCC card;
- (2) EX card if required;
- (3) Isolator Module;
- (4) Mounting rack and hardware;
- (5) The quantity of SPP radios as specified on the plans including *NEMA 4X type* enclosure with mounting bracket and hardware and Category 5e (CAT 5e) 600 volt (V) rated cable from the SSP to the Isolator Module;
- (6) Any associated cable, connectors, and hardware necessary to complete the work.

C. Furnish a VDS that:

- (1) Detects and counts vehicles using battery powered magnetometers utilizing wireless communications to transmit detection information;
- (2) Furnishes vehicle counts per lane, lane occupancy, vehicle speed (when more than one VSN is installed per lane), and vehicle classification (when one or more VSN is installed per lane);
- (3) Allows the time intervals for the above measurements to be user selectable from 30 seconds to 24 hours.

D. Furnish an SPP radio that:

- (1) Consists of a 2.4 gigahertz (Ghz) Master transceiver powered via CAT 5e cable;
- (2) Includes 600V rated CAT 5e cable from the SPP to the Isolator Module;
- (3) Includes an enclosure with mounting bracket, and associated hardware;
- (4) Transmits detection information to a 170, 2070 or *NEMA type* controller in real-time;
- (5) Operates on 48 VDC at 3 watt power or via non-isolated external 10 to 15VDC at 2 watt power;
- (6) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C);
- (7) Furnishes 1500V isolation and 5 kilovolt (kV) surge protection;
- (8) Is housed in a plastic enclosure, no larger than 12 inches high, 8 inches wide,

and 4 inches deep, meeting *NEMA 4X* and *International Protection Rating (IP67)* standards.

E. Furnish a master interface APCC card that functions as the hub of the sensor network, communicating with up to 96 VSN's transmitting detection information to the APCC.

2. Vehicle Sensor Node (VSN).

A. A complete VSN consists of:

- (1) A magnetometer,
- (2) A microprocessor,
- (3) A wireless transceiver,
- (4) A battery, and
- (5) Orange epoxy for securing the node in the pavement.

B. Furnish a VSN that:

- (1) Is 1.9 inches high, 2.9 inches square;
- (2) Is contained in a fully encapsulated housing to prevent moisture from degrading the components;
- (3) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C);
- (4) Operates on battery power for a minimum of 10 years under normal traffic conditions;
- (5) Detects a vehicle by measuring a change in the earth's magnetic field and transmits the detected information within 125 milliseconds (ms) of receiving the detected vehicle;
- (6) Can be programmed with a unique identifying code and transmits this code and detector information via a wireless radio communication method;
- (7) Automatically recalibrates in the event of a detector lock;
- (8) Responds within 100 seconds after the APCC is powered up.

3. Wireless Repeater (RP).

A. A complete RP consists of:

- (1) A battery operated transceiver;

(2) A battery with a minimum 8 year life; and

(3) An enclosure with mounting bracket and associated hardware.

B. Furnish an RP that:

(1) Is housed in a plastic enclosure, no larger than 12 inches high, 8 inches wide, and 4 inches deep, meeting *NEMA 4X* and *International Protection Rating (IP67) standards*;

(2) Extends the effective communication range of the VSN to the SPP up to 1000 feet; and

(3) Operates in an ambient temperature range of -37 °F to +176 °F (-38 °C to +80 °C).

4. Bus Interface Unit (BIU). Furnish a BUI that meets the requirements of *Section 8 of the NEMA TS2-Specification*. Furnish one 6 foot Port 1 communications cable to connect from the detector rack BIU to the controller unit.

5. Wireless Communication. Furnish a VDS, RP, or VSN that operates in the unlicensed Industrial, Scientific, and Medical (ISM) 2.4 GHz band. Ensure the SPP and VSN operate in any one of the 16 channels available in the band. Furnish two-way communication between the SPP and VSN to ensure integrity over the RP interface. Furnish a VSN that uses a Time Division Multiple Access (TDMA) protocol wherein each sensor is assigned a time slot during which it transmits and receives one or more data packets. Ensure all system components are synchronized to the same time reference sourced by the APCC.

6. Software. Furnish a VDS that can accept software and firmware upgrades. Furnish software required to configure the VSN, SPP and RP units and to store and retrieve the detection data. Ensure the VSN and RP are reconfigurable by a user over the wireless communication interface.

7. Warranty. Furnish materials with a manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Complete the work in accordance with sections 818 and 820 of the Standard Specifications for Construction, as shown on the plans, and as directed by the Engineer. Remove, store, and dispose of material in accordance with section 204 of the Standard Specifications for Construction.

1. Installation. When installing new equipment is specified, furnish and install the VDS, RP or VSN as shown on the plans. Installation includes master interface APCC card, EX card as required, Isolator Module, mounting brackets, hardware, cable, connectors, grounding, sensors, and other appurtenances required for a complete system.

Install the VSN in a 4 inch by 2¼ inch hole, cored in the pavement in the traffic lane as shown on the plans, or as directed by the Engineer. Encapsulate the VSN with orange epoxy.

Install the SPP and RP within range of the sensors and as shown on the plans, or as directed by the Engineer.

2. Removal. When removal is specified, remove the existing VDS, VSN or RP units, associated enclosures, mounting brackets, hardware, and other appurtenances required for a complete removal. Dispose of removed materials.

3. Salvage. When salvage is specified, remove the existing VDS, VSN, or RP units, associated enclosures, mounting brackets, hardware, and other appurtenances required for a complete removal, store salvaged materials in a protected and clean environment, and re-install the materials. Complete reinstallation in accordance with subsection c.1 of this special provision.

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

Pay Item	Pay Unit
DS_Wireless Vehicle Detection System	Each
DS_Wireless Vehicle Sensor Node	Each
DS_Wireless Repeater	Each
DS_Wireless Vehicle Detection System, Rem	Each
DS_Wireless Vehicle Sensor Node, Rem	Each
DS_Wireless Repeater, Rem	Each
DS_Wireless Vehicle Detection System, Salv	Each
DS_Wireless Repeater, Salv	Each
DS_Wireless Vehicle Sensor Node, Salv	Each

1. **DS_Wireless Vehicle Detection System** includes installing a wireless vehicle detection system including the SPP radios, the master interface APCC card, BIU, the EX cards, and the Isolator Module. The work includes all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work.

2. **DS_Wireless Vehicle Sensor Node** includes installing a wireless vehicle sensor node including the sensors, orange epoxy, and all appurtenant material required to complete the work.

3. **DS_Wireless Repeater** includes installing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work.

4. **DS_Wireless Vehicle Detection System, Rem** includes removing a wireless vehicle detection system including the SPP radios, the master interface APCC card, the EX cards, and the Isolator Module. The work includes removing all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work. **DS_Wireless Vehicle Detection System, Rem** also includes storage or disposal of removed material.

5. **DS_Wireless Vehicle Sensor Node, Rem** includes:

A. Remove a wireless vehicle sensor node including the sensor, epoxy, and all appurtenant material required to complete the work;

- B. Storage and or disposal of removed material;
 - C. Filling the old hole with black epoxy;
6. **DS_Wireless Repeater, Rem** includes removing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work. **DS_Wireless Repeater, Rem** also includes storage or disposal of removed material.
7. **DS_Wireless Vehicle Detection System, Salv** includes removing a wireless vehicle detection system including the SPP radios, the master interface APCC card, the EX cards, and the Isolator Module. The work includes removing all mounting brackets, hardware, cable, connectors, grounding, and all appurtenant material required to complete the work. **DS_Wireless Vehicle Detection System, Salv** also includes storage and reinstallation on the project;
8. **DS_Wireless Repeater, Salv** includes removing a wireless repeater including the RP, mounting brackets, hardware, and all appurtenant material required to complete the work. **DS_Wireless Repeater, Salv** also includes storage and reinstallation on the project;
9. **DS_Wireless Vehicle Sensor Node, Salv** includes:
- A. Removing a wireless vehicle sensor node including the sensor, epoxy, and all appurtenant material required to complete the work;
 - B. Storage and reinstallation on the project;
 - C. Core drilling a new 4 inch by 2¼ inch hole, as shown on the plans, or as directed by the Engineer, and encapsulating the VSN with orange epoxy; and
 - D. Filling the old hole with black epoxy.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HEMISPHERICAL VIDEO DETECTION

HRC: NBN

1 of 7

4/25/2024

a. Description. This work consists of installing or removing a single hemispherical video detection system and/or camera which detects vehicles on multiple roadway approaches at an intersection using only video images of vehicle traffic and is compatible with solid state pre-timed or actuated traffic signal control equipment and cabinet environments.

As applicable, this work includes installing or removing the necessary wiring, mounting brackets, mounting hardware, conduit, cable connectors, grounding and any other material required to ensure a complete installation or removal as specified for a location.

b. Material. Provide materials, as directed by the Engineer, necessary to provide a complete and operating job. Provide materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision.

1. System Requirements.

A. System Hardware. Provide a hemispherical video detection system that is composed of these principal items:

(1) Hemispherical camera(s);

(2) A field communications link consisting of a single Category 5 (CAT5)e cable between each camera and the video imaging vehicle detection system (VIVDS) processor;

(3) VIVDS processor along with a video monitor or associated equipment required to setup the VIVDS processor and software to communicate to the VIVDS processor.

B. System Software. Provide a VIVDS processor that is either *NEMA TS 2 TYPE 1* or *NEMA TS 2 TYPE 2* with a recommended standard (RS) 485 synchronous data link control (SDLC). Ensure the VIVDS processor has at least four processing cores of 2.8 Gigahertz (GHz) or greater, a minimum of 3 Gigabyte (GB) random access memory (RAM), and at least 32GB of onboard storage.

2. Functional Capabilities.

A. Provide system software that is able to detect either approaching or departing vehicles in multiple traffic lanes and have a minimum of 24 detector outputs per VIVDS processor. Ensure each zone and output is user definable through interactive graphics by drawing arbitrarily shaped polygons using the field setup computer or central control. Ensure the user is able to redefine previously defined detection zones.

B. Ensure the VIVDS processor provides real time vehicle detection (within 500 milliseconds (ms) of vehicle arrival).

C. Ensure the system can detect the presence of vehicles in up to 64 detection zones per camera.

D. Ensure detection zones are sensitive to the direction of vehicle travel and the direction to be detected by each detection zone is user programmable.

E. Ensure the VIVDS processor unit can compensate for minor camera movement (up to 2 percent of the field of view at 400 feet) without falsely detecting vehicles and that the camera movement is measured on the unprocessed video input to the VIVDS processor.

F. Provide a camera that operates while directly connected to VIVDS processor unit.

G. Ensure the video detection system operates with the monitoring equipment (monitor and/or laptop) disconnected or on-line once the detector configuration has been downloaded or saved into the VIVDS processor.

H. Ensure when the monitoring equipment is directly connected to the VIVDS processor, it can view vehicle detections in real time as they occur on the field setup computer's color video graphics adapter (VGA) display or the video monitor.

I. Provide a VIVDS processor that supports 1 or 2 omnidirectional view cameras. If equipped with 1 omnidirectional view camera, ensure the VIVDS processor is also capable of simultaneously supporting up to four more traditional view cameras for special needs such as advance detection or underpass detection.

3. Vehicle Detection.

A. Detection Zone Placement.

(1) Provide a hemispherical video detection system with flexible detection zone placement anywhere within the combined field of view of the image sensors. Ensure that preferred presence detector configurations are arbitrarily shaped polygons, including simple boxes, drawn across lanes of traffic or placed in line with lanes of traffic.

(2) Ensure a single detector is able to replace one or more conventional detector loops.

B. Detection Zone Programming.

(1) Ensure that a graphical interface video image of the roadway is used for the placement of detection zones.

(2) Ensure the monitor shows images of the detection zones superimposed outlined or filled, with a visible change indicating detection on the video image of traffic while the VIVDS processor is running verifying proper operation of the detection

system. Provide a VIVDS processor with a display that will indicate proper operation of the detection zones with the absence of video.

(3) Ensure the detection zones are created using the mouse or keypad to draw detection zones on the monitor and are capable of being sized and shaped to provide optimal road coverage and detection. Ensure that detector configurations can be uploaded to the VIVDS processor and that the detector configuration that is currently running can be retrieved from the VIVDS processor.

(4) Ensure that the mouse or keypad can be used to edit previously defined detector configurations so as to fine tune the detection zone placement, size and shape. Ensure that detection continues to operate from the detector configuration that is currently called while fine-tuning is being done.

(5) Ensure that the hemispherical video detection system is sensitive to the direction of vehicle travel with the direction to be detected by each detection zone to be user programmable. Ensure the vehicle detection zone does not activate from cross-street traffic, wrong way traffic, or from a vehicle traveling any direction other than the one specified for detection occupies the detection zone.

(6) Ensure detection zones have the option for the user to define that calls can be made with a side entrance (90 degrees or less angled entrance).

C. Design Field of View. Ensure the hemispherical video detection system can reliably detect vehicle presence in the design field of view. Ensure the design field of view is defined as the sensor view when the image sensor is mounted 30 feet or higher above the roadway, when the camera is adjacent (within 15 feet) to the edge of the nearest vehicle travel lane, and when the length of the detection area is not greater than 5 times the mounting height of the image sensor. Within this design field of view, ensure the VIVDS processor unit is capable of setting up a single detection zone for point detection (equivalent to the operation of a 6 foot by 6 foot inductive loop). Ensure a single camera, placed at the proper mounting height, is able to monitor up to and including 5 traffic lanes simultaneously. Ensure a single omnidirectional camera, placed at the proper mounting height, is able to monitor detection zones in at least intersection approaches.

D. Detection Performance. Ensure detection accuracy of the video detection system is comparable to properly operating inductive loops. Detection accuracy must include the presence of any vehicle in the defined detection zone regardless of the lane which the vehicle is occupying. Occlusion produced by vehicles in the same or adjacent lanes is not considered a failure of the VIVDS processor, but a limitation of the camera placement. Ensure detection accuracy (a minimum of 95 percent) is enforced for the entire design field of view on a lane by lane and on a time period basis. When specified on the plans, furnish up to 24 continuous hours of recorded video of all installed intersection cameras within the 30 day test period for verification of proper camera placement, field of view, focus, detection zone placement, processor setup and operation. The video from each camera must show vehicle detections for all zones.

4. VIVDS Processor.

A. Provide a VIVDS processor that is shelf mountable.

B. Provide a VIVDS processor that has a modular electrical design.

(1) The VIVDS processor must operate within a range of 89 to 135 volts alternating current (VAC), 60 Hertz (Hz) single phase. Ensure power to the VIVDS processor is from the transient protected side of the AC power distribution system in the traffic control cabinet in which the VIVDS processor is installed.

(2) Ensure communications to the field setup computer are through an Ethernet port. Ensure this port is able to download the real time detection information needed to show detector actuations.

(3) Ensure the VIVDS processor has an Ethernet connection on the front of the unit for the connection to the first camera. If a second camera is installed at the intersection, the camera will connect with the VIVDS processor through a connector mounted on the side of the processor.

(4) Provide a unit that is equipped with a single VGA video output. Ensure this output is capable of displaying the operation and detections of the VIVDS processor.

(5) Ensure the change log for all software upgrades and/or changes are presented on a readily assessable internet site with unencumbered public access.

(6) The unit software and the supervisor software must include diagnostic software to allow testing the VIVDS functions. This must include the capability to set and clear individual detector outputs and display the status of inputs to enable setup and troubleshooting in the field.

C Provide camera interface panel capable of being mounted to sidewalls of a controller cabinet for protection of the VIVDS processor and camera CAT5e connection. The panel must consist of, as a minimum, two CAT5e cable surge protection connections.

D. Environmental Requirements.

(1) Provide a VIVDS processor that is designed to operate reliably in the adverse environment found in the typical roadside traffic cabinet.

(2) Ensure that the VIVDS processor meets the environmental requirements set forth by the latest *NEMA TS1* and *TS2* standards as well as the environmental requirements for Type 170, Type 179 and 2070 controllers.

(3) Ensure the operating temperature is from -30 degrees Fahrenheit (F) to +165 degrees F at 0 percent to 95 percent relative humidity, non-condensing.

5. Hemispherical Camera Assembly.

A. Provide a hemispherical camera that:

(1) Uses high resolution, color image sensors as the video source for real time vehicle detection;

(2) Uses cameras that are approved for use with the VIVDS processor unit by the

supplier of the hemispherical video detection system.

(3) As a minimum, provides the following capabilities:

(a) Ensure images are produced with a complementary metal-oxide semiconductor (CMOS) sensing element with horizontal resolution of at least 2580 lines and vertical resolution of at least 1920 lines. Ensure images are output in digital format as Motion Joint Photographic Experts Group (MJPEG) image.

(b) Ensure the useable video and resolvable features in the video image are produced when those features have luminance levels as low 1.0 lux for color, for night use and as high as 10,000 lux during the day.

(c) Ensure the camera includes an electronic shutter control based upon average scene luminance and is equipped with fixed field of view and fixed focus lens which does not require opening the camera enclosure. Ensure the fixed focus lens is always in focus without any required end-user adjustments.

B. Provide a camera and lens assembly that is housed in an environmental enclosure that provides the following capabilities:

(1) Ensure the enclosure is waterproof and dust tight to the *NEMA 4* specifications.

(2) Ensure the enclosure allows the camera to operate satisfactorily over an ambient temperature range from -30 degrees F to +165 degrees F while exposed to precipitation as well as direct sunlight.

(3) Ensure the enclosure includes a provision for connection of the CAT5e cable. Ensure input power to the environmental enclosure is included in the Ethernet interface.

(4) Provides a thermostatically controlled heater at the front of the enclosure to prevent the formation of ice and condensation. The heater must not interfere with the operation of the camera electronics, and it must not cause interference with the video signal.

(5) Ensure the enclosure is light colored or unfinished and is designed to minimize solar heating. Any plastics used in the enclosure must include ultra violet inhibitors.

(6) Ensure the total weight of the image sensor in the environmental enclosure is less than 10 pounds.

(7) Provides waterproof quick disconnect connectors to the camera for the CAT5e connection.

(8) Provides camera mounting hardware that allows for vertical or horizontal mounting to the camera enclosure.

6. Field Communication Link.

A. Provide a field communications link that supports a two way communications

connection from the camera to the VIVDS processor.

B. In locations where the plans indicate CAT5e cable is required as the primary communications link, ensure this cable is burial grade as well as suitable for above ground direct sunlight applications.

C. Ensure all connection cables are continuous from the equipment cabinet to the camera connector.

D. Install lightning and transient surge suppression devices on the processor side of the field communications link to protect the peripheral devices. Ensure the suppression devices are all solid state. The devices must present high impedance to, and must not interfere with, the communications lines during normal operation. The suppression devices must not allow the peak voltage on any line to exceed 300 percent of the normal operating peak voltage at any time. The response time of the devices must not exceed 5 nanoseconds.

7. Warranty. Provide materials with a 3-year manufacturer's warranty, transferable to the MDOT, that the supplied materials are free from all defects in materials and workmanship. Furnish the warranty and other applicable documents from the manufacturer, and a copy of the invoice showing the date of shipment, to the Engineer prior to acceptance.

c. Construction. Install and/or remove the hemispherical video detection system and/or hemispherical video detection camera as indicated on the plans or as directed by the Engineer. All work must comply with sections 819 and 820 of the Standard Specifications for Construction, the applicable "typical" signal construction detail, and this special provision. Storage and/or disposal of the removed material is included and must comply with section 204 of the Standard Specifications for Construction or as directed by the Engineer.

1. Ensure the hemispherical video detection system is installed as recommended by the manufacturer and documented in installation materials provided by the manufacturer.

2. Ensure the camera equipment is not installed until all other signal equipment has been installed and inspected for correctness. Premature installations of camera equipment that need to be moved in order to make the system operate will be moved at the Contractor's cost. This movement will not qualify for extra payment or for time extensions. Deliver the VIVDS processor to the MDOT Statewide Signal shop or the inspecting agency representing MDOT for setup and installation in the controller cabinet.

3. Install or remove the hemispherical video detection system as indicated on the plans which includes the VIVDS processor, hardware, fittings, cable, connectors, grounding and all other material required to complete the work.

4. Install or remove the hemispherical video detection camera as indicated on the plans which includes the video detection camera, enclosure, mounting bracket, hardware, cable, connectors, and other material required to complete the work.

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

Pay Item	Pay Unit
DS_Hemispherical Video Detection Camera	Each
DS_Hemispherical Video Detection System	Each
DS_Hemispherical Video Detection Camera, Rem.....	Each
DS_Hemispherical Video Detection System, Rem.....	Each
DS_Hemispherical Video Detection Camera, Salv	Each
DS_Hemispherical Video Detection System, Salv	Each

1. **DS_Hemispherical Video Detection Camera** includes everything necessary to ensure a complete and operating job, which detects vehicles on multiple roadway approaches at an intersection, as shown on the plans or as directed by the Engineer.

2. **DS_Hemispherical Video Detection System** includes everything necessary to ensure a complete and operating job, as shown on the plans or as directed by the Engineer.

3. **DS_Hemispherical Video Detection Camera, Rem** includes removing, storing and disposing of removed material for a hemispherical video detection camera.

4. **DS_Hemispherical Video Detection System, Rem** includes removing, storing and disposing of removed material for a hemispherical video detection system.

5. **DS_Hemispherical Video Detection Camera, Salv** includes removing an existing hemispherical video detection camera, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

6. **DS_Hemispherical Video Detection System, Salv** includes removing an existing hemispherical video detection system, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
VIDEO DETECTION CAMERA AND SYSTEM

HRC: NBN

1 of 2

9/6/2024

a. Description

This work consists of installing or removing a video detection system and/or camera which detects vehicles on roadway approaches at an intersection using video images of vehicle traffic and is compatible with solid state pre-timed or actuated traffic signal control equipment and cabinet environments.

As applicable, this work includes installing or removing the necessary wiring, mounting brackets, mounting hardware, conduit, cable connectors, grounding, and any other material required to ensure a complete installation or removal as specified for a location. The Video Detection Camera and System shall be in accordance with the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction and as specified herein.

b. Materials

The Contractor shall furnish materials in accordance with Sections 819, 820, 918 and 921 of the MDOT 2020 Standard Specifications for Construction, except where otherwise noted.

All materials for the Video Detection Camera and System shall be manufactured by Iteris or an approved equal by the Engineer. The model includes the Iteris Vantage Apex high-definition video and radar hybrid sensor with sensor fusion and artificial intelligence (AI), and all associated hardware that includes, but not limited to, wiring, mounting brackets, mounting hardware, conduit, cable connectors, grounding, and any other material required to ensure a complete installation or removal as specified for a location.

For further Vehicle Detection System information, contact Frank Carrier at Carrier and Gable, (734) 748-0818 or frankcarrier@carriergable.com.

c. Construction

Install and/or remove the video detection system and/or video detection camera as indicated on the plans or as directed by the Engineer. All work must comply with Sections 819 and 820 of the MDOT 2020 Standard Specifications for Construction, the applicable "typical" signal construction detail, and this special provision. Storage and/or disposal of the removed material is included and must comply with Section 204 of the MDOT 2020 Standard Specifications for Construction or as directed by the Engineer.

Ensure the video detection system is installed as recommended by the manufacturer and documented in installation materials provided by the manufacturer.

Ensure the camera equipment is not installed until all other signal equipment has been installed and inspected for correctness. Premature installations of camera equipment that need to be moved to make the system operate will be moved at the Contractor's cost. This move will not qualify for extra payment or for time extensions. Deliver the processor to the City of Ann Arbor Signs and Signals for setup and installation in the controller cabinet. The City of Ann Arbor

Signs and Signals is located at the Wheeler Service Center, 4251 Stone School Rd, Ann Arbor, MI 48108. Contact Signs and Signals Supervisor, Marc Moreno at (734) 794-6350 x 43322 or mmoreno@a2gov.org.

Install or remove the video detection system as indicated on the plans which includes the processor, hardware, fittings, cable, connectors, grounding, and all other material required to complete the work.

Install or remove the video detection camera as indicated on the plans, which includes the video detection camera, enclosure, mounting bracket, hardware, cable, connectors, and other material required to complete the work.

d. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Pay Item	Pay Unit
DS_Video Detection Camera.....	Ea
DS_Video Detection System.....	Ea
DS_Video Detection Camera, Rem	Ea
DS_Video Detection System, Rem	Ea
DS_Video Detection Camera, Salv	Ea
DS_Video Detection System, Salv.....	Ea

DS_Video Detection Camera includes everything necessary to ensure a complete and operating job, which detects vehicles on roadway approach at an intersection, as shown on the plans or as directed by the Engineer.

DS_Video Detection System includes everything necessary to ensure a complete and operatin job, as shown on the plans or as directed by the Engineer.

DS_Video Detection Camera, Rem includes removing, storing, and disposing of removed material for a video detection camera.

DS_Video Detection System, Rem includes removing, storing, and disposing of removed material for a video detection system.

DS_Video Detection Camera, Salv includes removing an existing video detection camera, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

DS_Video Detection System, Salv includes removing an existing video detection system, storing the removed materials on site, and reinstalling materials at a location shown on the plans.

All items will be measured by the quantity shown on the plans and as specified herein and includes payment for all labor, equipment, and materials required to complete the work. Payment for accessories and mounting hardware required for installation shall not be paid separately but shall be included in the corresponding pay item.

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 an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here No. of employees _____

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$16.43/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$18.32/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Company Name

Street Address

Signature of Authorized Representative

Date

City, State, Zip

Print Name and Title

Phone/Email address

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2024 - ENDING APRIL 29, 2025

\$16.43 per hour

If the employer provides health care benefits*

\$18.32 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
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Vendor Name	Vendor Phone Number	
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure 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 any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

