

CITY OF ANN ARBOR
INVITATION TO BID



Nichols Arboretum Sewer and Siphon
Rehabilitation

ITB No. 4461

Due Date: Tuesday, November 8, at 2:00 p.m. (Local Time)

Public Services Area/Project Management Services Unit

Issued By:

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

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

NOTICE OF PRE-BID CONFERENCE

A **mandatory pre-bid conference and site tour** for this project will be held **on Wednesday, October 26, 2016**. The **conference** will be held **at 1:30 p.m. at the Basement Conference Room A of the Guy C. Larcom Municipal Building (City Hall), 301 East Huron Street, Ann Arbor, MI 48104**. The conference will be followed by a **site tour at 3:00 p.m.**, or 30 minutes after conference adjourns. The site tour will begin at the Lot M29 entrance to Nichols Arboretum. The Contractors will be given 30 minutes from the adjournment of the pre-bid conference to drive, park, and sign the site tour sign-in sheet. The Contractors shall come prepared with boots, raincoats, hats, gloves, etc., in case of mild weather conditions. In the case of inclement weather, an alternative site tour will be schedule for **Thursday, October 27, 2016 at 11:00 a.m.** **Failure to attend the pre-bid conference and site tour and sign the ITB No. 4461 sign-in sheets at the pre-bid conference and site tour will automatically disqualify a bidder from submitting a valid bid.** Any bid submitted by a party not attending and signing the roster at the pre-bid meeting will not be opened or considered. Administrative and technical questions regarding this project will be answered at this time. The pre-bid meeting is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the bid will be affirmed in an addendum.

INSTRUCTIONS TO BIDDERS

General

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

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

Preparation of Bids

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

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

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

All questions shall be due on or before **Tuesday, November 1, 2016 at 2:00 p.m.** and should be addressed as follows:

Specification/Scope of Work questions emailed to **mnearing@a2gov.org**
Bid Process and Compliance questions emailed to **cspencer@a2gov.org**

Any error, omissions or discrepancies in the specification discovered by a prospective contractor and/or service provider shall be brought to the attention of **Michael G. Nearing, Senior Project Manager, at MNearing@a2gov.org** after discovery as soon as possible. Further, the contractor and/or service provider shall not be allowed to take advantage of errors, omissions or discrepancies in the specifications.

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 **Tuesday, November 8, 2016 at 2:00 p.m. EST**. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and **one (1)** Bid copy in a sealed envelope clearly marked: **ITB No. 4461 and Nichols Arboretum Sewer and Siphon Rehabilitation**.

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Services, 1st Floor
301 East Huron Street
P.O. Box 8647
Ann Arbor, MI 48107

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

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

- **City of Ann Arbor Prevailing Wage Declaration of Compliance**
- **City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Vendor Conflict of Interest Disclosure Form**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**
- **Contractor Qualifications Forms as provided in the Detailed Specification entitled "Contractor Qualifications."**

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

Hand delivered bids will be date/time stamped/signed by the Procurement Unit at the address above in order to be considered. Normal business hours are 9:00 a.m. to 3:00 p.m. Monday through Friday, excluding Holidays. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time 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.

Bid Security

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

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of sixty (60) 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-1, Article III of the Contract. If these time requirements cannot 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-1, Article III (C) 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-3 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-2, 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 documentary proof of compliance when requested.

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 wage determination(s) current on the date 10 days before bids are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: www.wdol.gov

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

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.

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 _____, 201_.

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** _____, 201__

(Print) Name _____ Title _____

Company: _____

Address: _____

Contact Phone () _____ Fax () _____

Email _____

BID FORM

Section 1 – Schedule of Prices

Company: _____

Project: **Nichols Arboretum Sewer and Siphon Rehabilitation**

Unit Price Bid –

Note: Seven digit contract pay items (i.e., 2080025) denote a standard item of work as described in the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

Three digit contract pay items (i.e., 130) denote items of work as described in the City of Ann Arbor Public Services Department Standard Specifications.

<u>Contract Pay Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
200	General Conditions	LS	1	\$ _____	\$ _____
130	Protective Fencing	LF	3,396	\$ _____	\$ _____
201	Audiovisual Recording	LS	1	\$ _____	\$ _____
2020004	Tree Rem, 6 inch to 18 inch	Ea	9	\$ _____	\$ _____
2080036	Erosion Control, Silt Fence	FT	1,644	\$ _____	\$ _____
2080010	Erosion Control, Aggregate Cover	SY	444	\$ _____	\$ _____
202	1"x3" Aggregate, 12 inch	SY	535	\$ _____	\$ _____
3060010	Aggregate Surface Cse, 6 inch	SY	665	\$ _____	\$ _____
3020020	Aggregate Base, 8 inch	SY	305	\$ _____	\$ _____
4021232	Sewer Bulkhead, 18 inch	Ea	1	\$ _____	\$ _____
4021230	Sewer Bulkhead, 12 inch	Ea	1	\$ _____	\$ _____
203	Seeding, Fescue Lawn Mixture	LB	25	\$ _____	\$ _____
204	Seeding, Mesic Woodland Mixture	LB	10	\$ _____	\$ _____

TOTAL THIS PAGE \$ _____

BID FORM

Section 1 – Schedule of Prices

Company: _____

Project: **Nichols Arboretum Sewer and Siphon Rehabilitation**

<u>Contract Pay Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
8160037	Seeding, Mixture TDS	LB	15	\$ _____	\$ _____
8120022	Barricade, Type III, High Intensity, Lighted, Furn	Ea	25	\$ _____	\$ _____
8120023	Barricade, Type III, High Intensity, Lighted, Oper	Ea	25	\$ _____	\$ _____
8120030	Channelizing Device, 42 inch, Furn	Ea	100	\$ _____	\$ _____
8120031	Channelizing Device, 42 inch, Oper	Ea	100	\$ _____	\$ _____
8120140	Lighted Arrow, Type C, Furn	Ea	1	\$ _____	\$ _____
8120141	Lighted Arrow, Type C, Oper	Ea	1	\$ _____	\$ _____
8120310	Sign Cover	Ea	10	\$ _____	\$ _____
8120350	Sign, Type B, Temp, Prismatic, Furn	SF	460	\$ _____	\$ _____
8120351	Sign, Type B, Temp, Prismatic, Oper	SF	460	\$ _____	\$ _____
8120090	Culv, Temp	Ea	2	\$ _____	\$ _____
205	Minor Traf Devices, Modified	LS	1	\$ _____	\$ _____
8160028	Mulch Blanket, High Velocity	SY	1,473	\$ _____	\$ _____
206	Topsoil Surface, Furn, 4-inch	SY	1,473	\$ _____	\$ _____
207	Topsoil Surface, Furn, 1-inch, Modified	SY	292	\$ _____	\$ _____

TOTAL THIS PAGE \$ _____

BID FORM

Section 1 – Schedule of Prices

Company: _____

Project: **Nichols Arboretum Sewer and Siphon Rehabilitation**

<u>Contract Pay Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
208	Swing Gate	Ea	1	\$ _____	\$ _____
209	Sewer Flow Control	LS	1	\$ _____	\$ _____
210	Clean 36-inch Dia. Sanitary Sewer	LF	1,967	\$ _____	\$ _____
211	Clean 24-inch Dia. Siphon Pipe	LF	1,256	\$ _____	\$ _____
212	PACP Televis 36-inch Dia. Sanitary Sewer	LF	1,967	\$ _____	\$ _____
213	PACP Televis 24-inch Dia. Siphon Pipe	LF	1,256	\$ _____	\$ _____
214	Level 2 MACP Inspect Manhole or Chamber	Ea	10	\$ _____	\$ _____
215	Special Clean & Inspect - Chamber 71-69893	LS	1	\$ _____	\$ _____
216	Special Clean & Inspect - Chamber 71-69895	LS	1	\$ _____	\$ _____
217	Removal and Disposal of Sludge and Debris Material	Ton	100	\$ _____	\$ _____
218	Removal and Replacement of Chamber Roof Slab – MH-71-70049	LS	1	\$ _____	\$ _____
219	Removal and Replacement of Chamber Roof Slab – MH 71-9895	LS	1	\$ _____	\$ _____
220	CIPP Line 36-inch Dia. Sanitary Sewer	LF	1,627	\$ _____	\$ _____

TOTAL THIS PAGE \$ _____

BID FORM

Section 1 – Schedule of Prices

Company: _____

Project: **Nichols Arboretum Sewer and Siphon Rehabilitation**

<u>Contract Pay Item</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
221	Preline 36-inch Dia. Sanitary Sewer	LF	500	\$ _____	\$ _____
222	Project Clean-Up and Restoration, Special	LS	1	\$ _____	\$ _____
				Total This Page	\$ _____
				Total From Page BF-1	\$ _____
				Total From Page BF-2	\$ _____
				Total From Page BF-3	\$ _____
				TOTAL BASE BID	\$ _____

BID FORM

Section 2 - Material and Equipment 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.

<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-1, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

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

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

Signature of Authorized Representative of Bidder _____ 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</u> <u>(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 _____

BF-7

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 2015, 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 Nichols Arboretum Sewer and Siphon Rehabilitation, ITB No. 4461 in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable)	Contracts and Exhibits
Vendor Conflict of Interest Form	Bonds
Prevailing Wage Declaration of Compliance Form (if applicable)	General Conditions
Bid Forms	Standard Specifications
	Detailed Specifications
	Plans
	Addenda

ARTICLE II - Definitions

Administering Service Area/Unit means **Project Management Services Unit**

Project means **Nichols Arboretum Sewer and Siphon Rehabilitation, ITB No. 4461**

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 in accordance with Detailed Specification entitled "Project Schedule."
- (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 \$1,300.00 for each calendar day of delay beyond Substantial Completion and \$650.00 for delays in the Final Completion of the work for each calendar day beyond the Final Completion date. 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 agreement, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

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

ARTICLE VII - Relationship of the Parties

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

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

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. 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 harmless the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney’s fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor’s behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City’s sole negligence. 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.

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
City Administrator

By _____
Services Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

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 dated _____, 2016, for: Nichols Arboretum Sewer and Siphon Rehabilitation and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 201_.

(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:

LABOR AND MATERIAL BOND

- (1) _____
of _____(referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City, dated _____, 2016, for Nichols Arboretum Sewer and Siphon Rehabilitation; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 201_

(Name of Surety Company)
By _____
(Signature)
Its _____
(Title of Office)

(Name of Principal)
By _____
(Signature)
Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

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."

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

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

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

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

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

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

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

Section 11 - Inspection of Work

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

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

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

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

Section 12 - Superintendence

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

Section 13 - Changes in the Work

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

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

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

Section 14 - Extension of Time

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

- (1) When work under an extra work order is added to the work under this Contract;

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

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

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

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. 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 which may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, certificates of insurance and other documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required on behalf of itself, and when requested, any subcontractor(s). The certificates of insurance endorsements and/or copies of policy language shall document that the Contractor satisfies the following minimum requirements.

- (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 07 98 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 which 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 Job General Aggregate
\$1,000,000	Personal and Advertising Injury
\$2,000,000	Products and Completed Operations Aggregate

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 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 which 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.

- (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 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified 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) 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 admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- (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
CONTRACTOR QUALIFICATIONS

FTCH:MES

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10/04/16

a. General.- As detailed elsewhere in the Contract Documents and Drawings the work of this project is to be performed in a sensitive, valuable, natural area within the City of Ann Arbor (City) and the University of Michigan (U of M) Campus and Hospital Complex. This Detailed Specification sets forth criteria that will be used by the City in determining if the Contractor has the necessary personnel, equipment, and experience to perform the work of this project.

b. Documentation to be provided.- The Contractor Qualifications detailed in this specification apply to the following items:

- Sewer Televising and Cleaning
- Cured-In-Place Pipe (CIPP) Lining
- Onsite Superintendent/Foreman

Contractor to complete the attached Reference Form and submit it as part of the bid submittal. **Not filling out the form or providing past experience may result in disqualification of the bid.** If subcontractors are to be used for any of the above items, they are to fill out a separate form.

The projects and total footage claimed to have been performed by the Contractor shall be supported by owner references. The Contractor shall submit information to document their experience.

1. Sewer Televising and Cleaning.- The Contractor performing the sewer televising and cleaning shall be fully qualified, experienced, and equipped to complete this work as shown on the Drawings and as indicated in the specifications. The Contractor shall have cleaned and televised a minimum of 100,000 lineal feet of sanitary sewers equal to or greater than 36 inches in diameter with lengths of the individual segments over 1,000 feet each in the past 7 years. The Contractor shall also have cleaned and televised at least 3 sanitary siphon sewers equal to or greater than 24 inches in diameter in the past 7 years. The Contractor shall have also worked a minimum of three projects in similar environmentally sensitive areas in the past 7 years. The Contractor shall provide detailed description of these environmentally sensitive projects and methods used to mitigate the work upon request of the Engineer.

CONTRACTOR QUALIFICATIONS

CITY OF ANN ARBOR DETAILED SPECIFICATION FOR CONTRACTOR QUALIFICATIONS

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10/04/16

2. **Sewer CIPP Lining.**- The Contractor performing the CIPP lining work shall be fully qualified, experienced, and equipped to complete this work expeditiously and in a satisfactory manner and shall be certified and/or licensed as an installer by the CIPP manufacturer. The Contractor shall have installed a minimum of 10,000 lineal feet of CIPP in sanitary sewers equal to or greater than 36 inches in diameter in the past 7 years and over 1,000,000 feet of lining in general over the past 7 years. Installations must have been in northern states and/or Canada. Contractor must also provide safety record for the past 7 years.

3. **Onsite Superintendent/Foreman.**- The full-time, onsite superintendent/foreman shall be responsible for supervising all the work onsite, including but not limited to, the diversion of sanitary flow, bypass pumping, sewer televising and cleaning, and sewer CIPP lining, shall have supervised a minimum of 3 projects of this complexity in the past 7 years and shall have installed a minimum of 10,000 lineal feet of CIPP in sanitary sewers greater than 24 inches in diameter in the past 7 years.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS

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10/04/16

1. Sewer Televising and Cleaning References
(Must be completed and submitted with Bid for consideration)

List sewer cleaning and televising projects of sewers equal to or greater than 36 inches in size that total (together) over 100,000 lineal feet with the lengths of the individual segments over 1,000 feet in the past 7 years and provide references. Also, list a minimum of 3 projects that include the cleaning and televising of the sanitary siphon sewers equal to or greater than 24 inches in size in the past 7 years and provide references. The Contractor shall have also worked a minimum of three projects in similar environmentally sensitive areas in the past 7 years.

Firm's Name: _____

Role on Project: _____

1.1. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

1.2. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

CONTRACTOR QUALIFICATIONS

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
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Year Work Performed: _____ Work Amount (\$): _____

1.3. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

1.4. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

1.5. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

CONTRACTOR QUALIFICATIONS

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS**

FTCH:MES

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Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

1.6. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

1.7. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS

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10/04/16

2. Sewer CIPP Lining References

(Must be completed and submitted with Bid for consideration)

List sewer CIPP lining projects of sewers equal to or greater than 36 inches in diameter that total (together) over 10,000 lineal feet in northern states and/or Canada in the past 7 years and over 1,000,000 feet of lining in general over the past 7 years, and provide references. Also, provide safety record for the past 7 years as an attachment.

Firm's Name: _____

Role on Project: _____

2.1. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

2.2. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

CONTRACTOR QUALIFICATIONS

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS**

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2.3. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

2.4. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS

FTCH:MES

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10/04/16

3. Onsite Superintendent/Foreman
(Must be completed and submitted with Bid for consideration)

List name of onsite superintendent/foreman and list a minimum of 3 projects of similar complexity totaling 10,000 lineal feet of CIPP lining in sanitary sewers greater than 24 inches in diameter that they have supervised in the past 7 years and provide references.

Superintendent/Foreman Name: _____

3.1. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

3.2. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

CONTRACTOR QUALIFICATIONS

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONTRACTOR QUALIFICATIONS**

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3.3. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

3.4. Client's Name: _____

Address: _____

Contact Name: _____ Contact Phone: _____

Type of Work: _____

Year Work Performed: _____ Work Amount (\$): _____

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$104,000

FTCH:EMS

1 of 3

10/06/16

a. General.- This item shall include all work described and required by the Drawings and specifications for which the item of work "General Conditions" is listed, as well as items of work not listed in the Bid Form including, but not limited to:

1. Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking;
2. Coordination of, and cooperation with, other contractors, appropriate City of Ann Arbor and University of Michigan agencies/departments, and utilities;
3. Protection and maintenance of utilities, including support, protection, capping, repair, replacement, connection or reconnection of existing pipelines, and utilities damaged by the Contractor's operations;
4. Protection of the features within Nichols Arboretum as described in Detailed Specification "Protection of Arboretum;"
5. Protection of wetlands as described in Detailed Specification "Protection of Wetlands," water courses and drainage ditches, and/or channels;
6. Dewatering and drainage of excavations as required to maintain a stable, open hole;
7. Earthwork, including top soil removal, excavation, embankment, grading, and soil compaction as required for construction of aggregate access paths and maintenance pad (approximate earthwork quantity of 250 cubic yards of excavation);
8. Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors;
9. Disposing of excavated materials and debris (excluding debris material removed from sewer and siphon cleaning operations);
10. Temporary sheeting, bracing, and shoring of excavations;
11. Maintaining drainage;

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$104,000

FTCH:EMS

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12. Maintaining trail and drive openings, sidewalks, bike paths, trails, and pedestrian access within Lot M29 and Nichols Arboretum. This includes the placement and maintenance of gravel in drive and trail openings as directed by the Engineer;

13. Storing all materials and equipment off lawn areas in locations indicated on the Drawings;

14. Temporary removal/relocation, storage, and re-installation/re-setting of miscellaneous features within Nichols Arboretum (benches, boulders, tables, etc.) which conflict with the proposed construction;

15. Temporary removal/relocation, storage, and re-installation/re-setting of existing street name, guide, and regulatory signs, mailboxes, etc. which conflict with the proposed construction;

16. Furnishing and operating vacuum-type street cleaning equipment a minimum of once per week or as frequently as directed by the Engineer in order to remove mud, soil, rocks, debris, or any other deleterious materials from paved areas;

17. Noise and dust control;

18. Mobilization(s) and demobilization(s);

19. Furnishing submittals and certifications for all materials and supplies;

20. Removal of shrubs, brush, and trees less than 6 inches in diameter as directed by the Engineer;

21. Removal and proper disposal of downed trees regardless of diameter and length;

22. Furnish and install temporary cover(s) to seal and secure sanitary chambers, during non-work hours, capable of withstanding the weight of a human/deer at a minimum;

23. All miscellaneous and incidental items such as overhead, insurance, and permits;

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$104,000

FTCH:EMS

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24. Meeting all requirements relating to Debarment Certification, Davis Bacon Act, and Disadvantaged Business Enterprise, and providing the necessary documentation.

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

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

<u>Contract Pay Item</u>	<u>Pay Unit</u>
General Conditions, Max. \$104,000	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Contract Documents and as included in this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCOPE

FTCH:EMS

1 of 2

10/18/16

The scope of this project includes cleaning and televising of the 36-inch sanitary sewer and 24-inch siphon pipes in accordance with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP), cured-in-place pipe (CIPP) sewer lining of the 36-inch sanitary sewer, special cleaning and inspection of two sanitary chambers, removal and replacement of two chamber roof slabs, inspection of all remaining manholes in accordance with NASSCO Level 2 Manhole Assessment and Certification Program (MACP), and the construction of a new aggregate path and maintenance pad. In order to complete this work, diversion of sanitary flows and bypass pumping will be required.

The limits of the project fall within the Nichols Arboretum (Arboretum). The Arboretum is jointly owned by the City of Ann Arbor and the University of Michigan. The Arboretum is comprised of various natural features, including botanical areas, significant trees and plants, steep slopes, as well as 6 regulated wetlands as indicated on the Drawings. Contractor shall be sensitive to the environment, the patrons of the Arboretum, and the individual requirements of both property owners.

The major elements of the work covered by the Contract Documents under this Contract scope of work is as outlined below:

1. Construct permanent aggregate access path to MH 71-69895 and aggregate maintenance pad at end of the access path, adjacent to the structure.
2. Locate buried manhole between MHs 71-68806 and 71-69254 by televising portion of 36-inch sanitary sewer.
3. Divert sanitary flows from the 36-inch sanitary sewer to the Northside Interceptor by installing level sensors in MHs 71-71813 and 71-68799 and plugs in MHs 71-71813, 71-68806, and 71-69254 (or 71-68799 as alternate to MH 71-69254).
4. Bypass pump remaining sanitary flow from sewers entering MHs 71-69254, 71-70050, and 71-69895.
5. Clean and PACP televise the 36-inch sanitary sewer from MH 71-69254 to MH 71-69893 and from MH 71-69895 to MH 71-69896.
6. Bulkhead the abandoned overflows in MHs 71-69893 and 71-69892.

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCOPE**

FTCH:EMS

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10/18/16

7. Clean and PACP televise the two 24-inch siphon pipes from MH 71-69893 to MH 71-69895.

8. Perform Special Cleaning and Inspection of sanitary chambers MH 71-69893 and MH 71-69895.

9. Perform MACP Level 2 inspection of all other sanitary manholes and chambers.

10. Remove and replace roof slabs in chambers MH 71-69895 and MH 71-70049.

11. Line the 36-inch sanitary sewer from MH 71-69254 to MH 71-69893.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

FTCH:EMS/AA:MGN

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10/18/16

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

1. The Contractor shall not begin the work of this project until receipt of the fully executed Contract and Notice-to-Proceed, which is not anticipated to be provided prior to Friday, December 23, 2016.

2. The entire work under this Contract including, but not limited to; sanitary sewer inspection, cleaning, televising, and rehabilitation (cured-in-place pipe [CIPP] lining); chamber cleaning and inspection; chamber roof slab replacement; aggregate maintenance path and pad construction; the removal of any and all traffic control devices; and the installation/maintenance of the needed temporary soil erosion and sedimentation control devices, shall be completed by the Substantial Completion date of Friday, March 24, 2017.

3. Final restoration of wooded areas within the project limits and any other disturbed areas shall be completed by the Final Completion date of Wednesday, May 31, 2017, as described in Detailed Specification "Project Clean-Up and Restoration, Special," and as indicated on the Drawings.

Failure to complete the work as required herein, including approved time extensions granted thereto, as determined by the Engineer, shall entitle the City to deduct from the monies due to the Contractor, "Liquidated Damages", and not as a penalty, an amount, as provided for by the Contract in Subsection C, Article III, Page C-1 of the Contract Documents and defined herein.

The Contractor shall be furnished with 2 copies of the Contract, for their execution, on or about Friday, November 18, 2016. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificates, to the City within 21 calendar days. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Engineer, and in no case before receipt of the fully executed Contract. City Council approval is expected Monday, December 19, 2016.

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 within the specified time/date of this Contract. Should the Contractor demonstrate that work must occur on Sundays in

CITY OF ANN ARBOR
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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 Engineer. The Contractor will submit authorization requests for any Sunday work a minimum of 3 working days in advance of the day of the proposed work. There will be no additional compensation due to the Contractor for work performed on Sundays.

Prior to the start of any construction, including mobilization and staging, the Contractor shall submit a detailed progress schedule of work for the Engineer's review and approval. Work shall not start until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained herein, and in other Detailed Specifications. The Contractor shall update the approved work schedule upon changes and upon request by the Engineer and present it to the Engineer within 7 days of said request or change.

The Contractor shall access the site along Nichols Drive from East Medical Center Drive through Lot M29 in accordance with the requirements and restrictions as described in Detailed Specification "Construction Sequencing."

The Engineer may delay or stop the work due to threatening weather conditions. The Contractor shall not be compensated for unused materials or downtime due to rain, snow or the threat of rain or snow beyond what is outlined in Detailed Specification "Working in the Rain." The Contractor is solely responsible for repairing all damages to the work and to the site, including steep slopes, road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract. The Engineer may stop the work, or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work. The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons. The Contractor is solely responsible for repairing all damages to the work and to the site, including steep slopes, road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

No work shall be performed or lane closures permitted during Christmas Eve and Day, and New Years Eve and Day holiday periods, as defined by the Engineer.

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DETAILED SPECIFICATION
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The milestone schedule below indicates dates of intermediate and major project milestones based on an anticipated Notice to Proceed date of Friday, December 23, 2016.

Milestone Schedule	
<u>Milestone</u>	<u>Date</u>
Contractor Staging and Mobilization	December 23, 2016
No Work Permitted	December 24-25, 2016
No Work Permitted	December 31, 2016 and January 1, 2017
Substantial Completion	March 24, 2017
Final Completion	May 31, 2017

Failure to substantially 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, **\$1,300.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the Substantial Completion date as defined in this Detailed Specification.

If the Contractor fails to complete the work such that Final Completion cannot be granted by the date specified herein, including time extensions granted thereto as determined by the Engineer, it shall entitle the City to deduct from the payments due the Contractor, **\$650.00** in Liquidated Damages, and not as a penalty, for delays in the Final Completion of the work for each and every calendar day beyond the Final Completion date defined in 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 work required by this construction contract is not completed by the specified date(s) 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 3 years. If the Engineer elects to terminate the Contract, contract pay 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.

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UTILITIES COORDINATION

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The Contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Article 104.08 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction. In addition, for the protection of underground utilities, the Contractor shall follow the requirements in Article 107.12 of the 2012 edition of the MDOT Standard Specifications for Construction.

The following utility owners have facilities located within the rights-of-way surrounding the project or within Nichols Arboretum:

<u>Utility</u>	<u>Type of Service</u>
City of Ann Arbor W.R. Wheeler Center 4251 Stone School Road Ann Arbor, MI 48108 (734) 794-6351	Sanitary Sewer – Mark Cozart – ext. 43318 Water – Daniel Wooden – ext. 43324 Storm Sewer – Steve Goebel – ext. 43323
City of Ann Arbor W.R. Wheeler Center 4251 Stone School Road Ann Arbor, MI 48108 (734) 794-6351	Signs/Signals/Street Lighting Chuck Fojtik – ext. 43322
AT&T Contact: Andy Johnson 550 South Maple, 2 nd Floor Ann Arbor, MI 48103 (734) 996-5350	Telephone/Fiber Optic
DTE Energy Contact: Julie Gottardi Western Wayne Service Center 8001 Haggerty Road Belleville, MI 48111 (734) 397-4303	Electric

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
UTILITIES COORDINATION

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DTE Energy (Michcon)
Contact: Laurie Forrester
3150 East Michigan Avenue
Ypsilanti Twp, MI 48198
(313) 389-7261

Gas

For protection of underground utilities, the Contractor shall call "MISS DIG" toll free at 1-800-482-7171 or call 811 a minimum of 3 working days prior to excavation within the project limits. The Contractor must also notify utility owners who may not be part of the "MISS DIG" system.

The Contractor shall also contact and notify the University of Michigan to locate and mark their utilities that may exist within the project limits.

The Contractor shall notify the City of Ann Arbor a minimum of 3 days prior to beginning construction.

The owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way or project limits.

Work By Others.- During the life of this contract, other public authorities and utility companies may be performing work within or adjacent to the project limits, including, but not limited to; construction of adjacent projects, underground utility work, permanent signing and traffic signals work, traffic control improvements, street maintenance and snow removal, etc. The Contractor shall cooperate and coordinate construction activities with these agencies in accordance with Article 104.08 of the 2012 edition of the MDOT Standard Specifications for Construction.

Existing Utilities, Site Features, and Investigations.- The existing utilities structures, features, and site conditions above and underground are indicated on the Drawings from the best available information. These include, but are not limited to; pipelines, conduits, and the like.

It is the Contractor's sole responsibility to perform their own site investigations and research and to incorporate in their bid sufficient amounts for all utilities coordination work.

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If any utilities, structures, features, and/or site conditions are discovered or suspected by the Contractor to be different than indicated on the Drawings, the Contractor is obligated to notify the Engineer immediately in writing so an addendum may be issued and/or the bid date may be revised.

Agreements, permits, reports, and other investigations and information utilized in the development of the project are available for review by prospective bidders prior to submittal of their bid. Making this information available for review does not relieve the Contractor from the responsibility of performing their own site investigations, and the Contractor is responsible for any and all conclusions that are drawn from this data.

Electronic copies of the full versions of the available project documents can be obtained by contacting:

City of Ann Arbor
Public Services Area - Project Management Services Unit
301 East Huron Street; P.O. Box 8647
Ann Arbor, MI 48107-8647

Michael G. Nearing, PE
Senior Project Manager
(734) 794-6410 ext. 43635
mnearing@a2gov.org

8:00 a.m. to 5:00 p.m. (only)

The Contractor's submittal of a bid shall be considered prima facie evidence that they have reviewed all available information and performed all needed investigations and that their bid contains the needed resources to complete the project for the lump sum and unit prices contained herein.

Reference the Detailed Specification for "Extension of Time, Additional Compensation" for provisions regarding delays.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PERMITS

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a. General.- The Contractor shall secure all permits required by the agency having jurisdiction, shall abide by all rules and regulations of each, and shall pay all costs in connection with the permits. The Contractor shall pay for all permit and inspection fees as the agencies may charge to insure compliance with their requirements, unless stated otherwise herein. The Contractor shall not be reimbursed for permit, inspection fees, retainage, bonds, or any other associated permit costs. These amounts shall be included in the item of work for "General Conditions." City of Ann Arbor (City) Lane Closure permits, "No Parking" signs permits, and Right-of-Way permits shall be secured as required under Section 9 of "General Conditions."

b. City of Ann Arbor Grading/Soil Erosion and Sedimentation Control (SESC) Permit.- The Contractor shall obtain a City of Ann Arbor Grading/SESC Permit prior to beginning any work on this project. A partially complete permit application is included for the Contractor's information and to complete and submit along with the SESC plans in the Drawings.

The Contractor shall be aware that this permit must be submitted with the name of the Prime Contractor as the Designated Agent. The City will waive the fees for this permit. The Contractor shall coordinate with and complete all necessary paperwork for the City of Ann Arbor Planning and Building Services Unit for the procurement of the needed permit.

All costs associated with coordinating with the City to obtain the permit will not be paid for separately.

c. University of Michigan Soil Erosion and Sedimentation Control Plan.- Because the project is located within 500ft of a water of the state, a SESC Plan is required. The City has included the University of Michigan Occupational Safety and Environmental Health (OSEH) on the SESC Permit for this project.

A University of Michigan OSEH storm water permit is not required for this project.

COORDINATION AND COOPERATION WITH OTHERS AND WORK BY OTHERS

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COORDINATION AND COOPERATION WITH OTHERS AND WORK BY OTHERS

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a. General.- The Contractor is reminded of, and shall comply with, the requirements of Section 104.08 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, "Cooperation by the Contractor."

The Contractor shall directly coordinate their work with individual City of Ann Arbor (City) Departments/Divisions/Units and appropriate University of Michigan (U of M) Departments.

No additional compensation will be paid to the Contractor, and no adjustments to contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Drawings.

Contractor shall coordinate with Utility Owners, in accordance with Detailed Specification "Utilities Coordination."

b. Owner/University of Michigan Occupancy During Construction.- The U of M Matthaei Botanical Gardens and Nichols Arboretum (MBGNA) Director and field staff will occupy and/or utilize the project site during the life of this contract for conducting normal maintenance and operations. Residents of the MBGNA Caretaker's House will utilize Nichols Drive for access.

The University of Michigan Hospital Complex will continue the use of Nichols Drive and Lot M29 for valet and permit parking as described in the Maintenance of Traffic (MOT) plans and elsewhere in the specifications.

The Contractor shall cooperate with the U of M departments to minimize conflict between their work operations and the day-to-day activities within Nichols Arboretum, the U of M Hospital Complex, and the surrounding area.

c. Access Agreement/Private Easements.- The City has obtained the necessary easements and access agreements required for construction within property owned by U of M. The Contractor shall conduct their operations in these areas in such a manner as to comply with the conditions set forth in said easement agreements. The Contractor shall limit their operations to the time of year, time of week, or time of day required on certain easements, as noted in the easements, agreements, and Contract Documents. Electronic copies of easements and access agreements are on file with the City and can be obtained by contacting:

COORDINATION AND COOPERATION WITH OTHERS AND WORK BY OTHERS

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City of Ann Arbor
Public Services Area - Project Management Services Unit
301 East Huron Street; P.O. Box 8647
Ann Arbor, Michigan 48107-8647

Michael G. Nearing, PE
Senior Project Manager
(734) 794-6410 ext. 43635
mnearing@a2gov.org

8:00 a.m. to 5:00 p.m. (only)

Costs for complying with the requirements of this Detailed Specification, including the Contractor accomplishing all conditions noted in the easement and access agreements, will not be paid for separately, but shall be included in the bid price of the contract pay item "General Conditions."

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MAINTENANCE OF TRAFFIC

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a. Description.- This work shall consist of protecting and maintaining vehicular and pedestrian traffic in accordance with Sections 104.11, 812, and 922 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction; Part 6 of the 2011 edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD); and the City of Ann Arbor (City) Public Services Department Standard Specifications, except as modified herein.

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

b. Materials.- The materials and equipment shall meet the requirements specified in the sections designated above of the 2012 edition of the MDOT Standard Specifications for Construction, the 2011 MMUTCD, and all specification requirements contained in these Contract Documents.

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

The Contractor shall furnish and operate Lighted Plastic Drums; Type III Barricades; and Type B Temporary Signs as directed by the Engineer.

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

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

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c. Maintenance of Traffic - General.- The Contractor shall maintain traffic such that no vehicle or pedestrian shall be able to enter active work zones or staging areas.

The Contractor shall access the project site through Nichols Drive from East Medical Center Drive only.

Portions of Nichols Drive within Nichols Arboretum (Arboretum), as indicated on the Drawings, shall be used for construction staging, work area, and storage of Contractor materials and equipment. Lot M29 shall remain open for the public, including U of M valet and permit parking along Nichols Drive. The Contractor shall maintain safe local vehicular and pedestrian access to Lot M29 at all times.

The Contractor shall limit use of the premises and maintain access to the public, the U of M Matthaei Botanical Gardens and Nichols Arboretum Director/Grounds Department, and emergency vehicles to the Caretaker's House, as described in Detailed Specification "Working Space."

The Contractor shall at no time obstruct any of the traffic lanes of East Medical Center Drive, unless as approved by U of M for installation of the ultrasonic level sensor, and plug, in MH 71-68799 as required for the sewer flow control system. Temporary lane closures on East Medical Center Drive are permitted for installation, maintenance, and removal of flow diversion devices. This work, and subsequent obstructions to traffic lanes, shall be coordinated with the City and U of M, providing a minimum of 7 days advance notice. All temporary traffic control devices associated with the work in MH 71-68799 shall be installed as needed to complete the work prior to 7:00 a.m., or after 7:00 p.m. in accordance with the requirements of Detailed Specification "Sewer Flow Control."

Temporary closure of the center lane of Fuller Street at Glen Court is permitted for installation, maintenance, and removal of flow diversion devices. This work, and subsequent lane closures and obstructions, shall be coordinated with the City and U of M, providing a minimum of 7 days advance notice. The Contractor shall coordinate with the City to obtain lane closure permits as required. Lane closure permits shall be obtained by the Contractor from the Project Management Services Unit at least 48 hours in advance of any proposed lane closing. The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer with covers meeting the requirements of Section 812.03.D.2 of the 2012 edition of the MDOT Standard Specifications for Construction. All temporary traffic control devices associated with this closure shall be installed after 9:00 a.m. and removed before 3:30 p.m. of the same day.

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During times that it may become necessary to temporarily obstruct local traffic on Fuller Street, Glen Court, and East Medical Center Drive to perform the work, the Contractor shall provide traffic regulator control in conformance with Chapter 6E, Sections 6E.01 through 6E.08, of the MMUTCD. A minimum of two traffic control regulators are required. The cost of traffic regulator control shall be included in the contract pay item "Minor Traf Devices, Modified."

The cost of the lane closure, including obtaining the permit, temporarily covering existing signs as directed, maintaining pedestrian traffic, and maintaining and relocating traffic control devices will not be paid for separately, but shall be deemed to be included in the cost of the item of work "Minor Traf Devices, Modified."

The Contractor shall coordinate their operations with all utilities, Contractors, and/or subcontractors performing work on this and other projects within, or adjacent to, the project site.

The hours of work shall be as defined in Detailed Specifications "Hours of Work," "Construction Sequencing," and "Project Schedule."

The Contractor shall use quantities of dust palliative and maintenance aggregate for use as temporary base, surfacing, and dust control at utility crossings, side roads, and driveways (wherever required to maintain traffic), and where directed by the Engineer to maintain local and emergency access. The cost for the use of dust palliative and maintenance aggregate, as required and directed by the Engineer for maintenance of traffic and local access, shall be included in contract pay item "General Conditions," and will not be paid for separately.

All traffic control devices shall be in place prior to beginning the work. The Contractor shall furnish, erect, maintain, and upon completion of the work, remove any and all traffic control devices utilized on the project prior to final inspection and acceptance as described in Detailed Specification "Final Acceptance."

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MAINTENANCE OF TRAFFIC

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d. Measurement and Payment.- The completed work as measured for these items of work will be paid for at the contract unit price for the following contract pay items:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Minor Traf Devices, Modified.....	Lump Sum
Barricade, Type III, High Intensity, Lighted, Furn	Each
Barricade, Type III, High Intensity, Lighted, Oper	Each
Channelizing Device, 42 inch, Furn.....	Each
Channelizing Device, 42 inch, Oper	Each
Lighted Arrow, Type C, Furn	Each
Lighted Arrow, Type C, Oper.....	Each
Sign Cover	Each
Sign, Type B, Temp, Prismatic, Furn.....	Square Foot
Sign, Type B, Temp, Prismatic, Oper	Square Foot

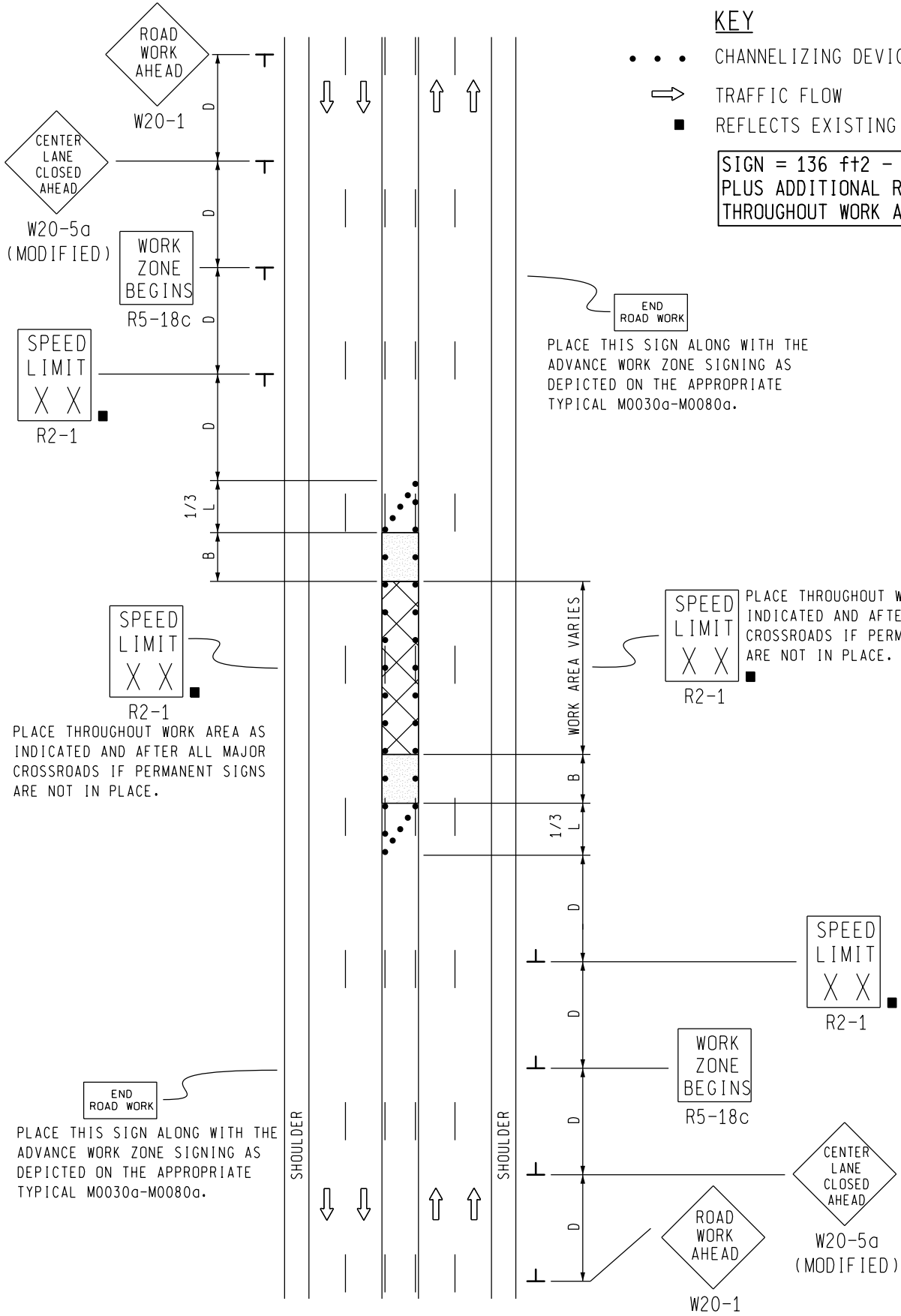
The unit price as bid for these items of work shall include all labor, material, and equipment costs to furnish, operate, and remove the items from the site when no longer needed as detailed herein.

The estimated quantities for maintaining traffic are based on the maintenance of traffic (MOT) plans. Any additional signing, traffic control devices, or the like, required to expedite the construction, or required given Contractor's change in staging, beyond that which is specified, shall be at the Contractor's sole expense.

KEY

- • • CHANNELIZING DEVICES
- ⇒ TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 136 f+2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA



END ROAD WORK
PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

SPEED LIMIT XX R2-1
PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

END ROAD WORK
PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

<p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>	<p>TYPICAL TEMPORARY TRAFFIC CONTROL FOR A CENTER-LANE FOR LEFT TURN ONLY CLOSURE ON A MULTI-LANE UNDIVIDED ROADWAY, WORKERS NOT PRESENT NO SPEED REDUCTION</p>	
	<p>DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB</p>	<p>OCTOBER 2011 PLAN DATE:</p>
<p>FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0330a.dgn REV. 10/18/2011</p>		

NOT TO SCALE


NOTES

1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE M0020a FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 25A. THIS SEQUENCE SHOULD ONLY BE USED WHEN WORKERS ARE NOT PRESENT, E.G., FOR CURING CONCRETE OVERNIGHT, ETC. WHEN WORK IS BEING CONDUCTED IN THE CENTER LANE, AN ADJACENT LANE (IN ONE OR BOTH DIRECTIONS) SHOULD ALSO BE CLOSED UTILIZING THE APPROPRIATE TYPICAL SIGNING SEQUENCE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A CENTER-LANE FOR LEFT TURN ONLY CLOSURE ON A MULTI-LANE UNDIVIDED ROADWAY, WORKERS NOT PRESENT NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf CHECKED BY: BMM:CRB	OCTOBER 2011 PLAN DATE:	M0330a	SHEET 2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0330a.dgn REV. 10/18/2011			

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONSTRUCTION SEQUENCING

FTCH:EMS

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a. General.- This Detailed Specification does not describe the full range of materials and processes needed to complete the work under this Contract. It is intended to indicate major project requirements and assist the Contractor in developing, for the review and approval of the Engineer, the Progress Schedule for the project. It is the Contractor's responsibility to review this sequence and all other supporting Drawings and Detailed Specifications to determine, on their own, prior to bid submittal, a detailed construction process that follows this sequence. If the Contractor determines they cannot perform the work in this sequence, as indicated in the Drawings and all other requirements indicated in the Contract Documents, they shall immediately present an alternative construction sequence and approach to the Engineer as part of their bid submittal. The alternative construction sequence will be subject to review and approval by the Engineer. No additional payment shall be provided to the Contractor due to changes to the construction sequence.

The Contractor must submit a detailed Progress Schedule at the Preconstruction Meeting. The Engineer will review the Progress Schedule and ask for any needed revisions in order to bring the Progress Schedule into conformance with the Contract Documents. Unless an alternative sequence is requested by the Contractor, and approved in writing by the Engineer, the work shall be performed in the order as indicated on the Progress Schedule.

b. Sequence of Construction.- Unless an alternative sequence is requested in writing by the Contractor, and approved by the Engineer, the work shall be performed in the order described below. This sequence of construction is intended to maximize work progress while minimizing damage in, on, and around the working areas of the project.

Some of the work tasks listed below may be performed concurrently, at the discretion of the Contractor, and as approved by the Engineer. Additional sequencing requirements may be specified elsewhere within the Contract Documents and/or Drawings. The work to be performed includes, but is not limited to, the following:

1. Audiovisual recording of the entire project site as well as East Medical Center Drive, the entire length of Nichols Drive and the parking lot (Lot M29), Fuller Park, the route from the work site to the hydrant at Fuller Park and back, and the intersection of Glen Court and Fuller Street, in accordance with Detailed Specification "Audiovisual Recording" and elsewhere in the Contract Documents.

CITY OF ANN ARBOR
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FOR
CONSTRUCTION SEQUENCING

FTCH:EMS

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2. Implementation of the required temporary traffic control devices and trail closures in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer.

3. Implementation of soil erosion and sedimentation control (SESC) measures as indicated on the Drawings, as detailed in the specifications, and as directed by the Engineer. The Contractor shall install only those devices necessary to perform the work of the particular stage or to meet the appropriate federal, state, or local regulations.

4. Install the tree and wetland protection fencing and other construction fencing as indicated in the Drawings.

5. Perform required clearing and removal of trees marked for removal and downed trees impacting work zones in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer. All tree removals and clearing required for must begin after October 1, 2016, and be completed before March 31, 2017, to comply with environmental restrictions.

6. Construct the permanent aggregate access path to MH 71-69895 and aggregate maintenance pad adjacent to the structure in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer.

7. Obtain approval for, set-up, test, and activate sewer flow control operations. Coordinate installation of flow diversion plugs in upstream manholes with City of Ann Arbor (City) Field Services.

A. Provide a minimum of 7 days advance notice to the City and the University of Michigan (U of M) prior to implementing.

B. Televiser portion of 36-inch sanitary sewer from MH 71-68806 to MH 71-69254 as described in the Flow Control Sequence on the Drawings to determine location, type, and condition of buried manhole, frame, and cover.

C. Install sewer flow control measures. Implementation of flow diversion and bypass pumping operations may occur before, or after, sewer and cleaning televising, as required by the cleaning and televising plan.

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8. Clean and televise the 36-inch sanitary sewer from MH 71-69254 to MH 71-69893 and from MH 71-69895 to MH 71-69896 in accordance with Pipe Assessment and Certification Program (PACP) requirements, the Drawings, as detailed in the specifications, and as directed by the Engineer.

9. Bulkhead the abandoned overflows in MH 71-69893 and MH 71-69892.

10. Clean and televise the two 24-inch siphon pipes from MH 71-69893 to MH 71-69895 in accordance with PACP requirements, the Drawings, as detailed in the specifications, and as directed by the Engineer.

11. Special clean and inspect sanitary chambers MH 71-69893 and MH 71-69895 in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer. Verify with the Engineer that roof slab at MH 71-69895 can be removed.

12. Inspect sanitary manholes and chambers MH 71-68806, MH 71-69254, MH 71-69257, MH 71-70050, MH 71-70049, MH 71-70048, MH 71-70047, MH 71-69892, MH 71-70062, and MH 71-69896 in accordance with Manhole Assessment and Certification Program (MACP) Level 2 requirements, the Drawings, as detailed in the specifications, and as directed by the Engineer.

13. Remove and replace roof slabs in sanitary chambers MH 71-69895 and MH 71-70049 in accordance with the Drawings, as detailed in the specifications, and as approved by the Engineer.

14. Perform sewer rehabilitation including lining the existing 36-inch sanitary sewer from MH 71-69254 to MH 71-69893 in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer.

15. Remove flow diversion plugs and deactivate bypass pumping operations in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer.

16. Perform clean-up and required restoration of the project site in accordance with the Drawings, as detailed in the specifications, and as directed by the Engineer.

17. Upon completion of the work, remove all temporary traffic control devices and SESC measures.

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c. Work Restrictions.- The Contractor shall plan their work in accordance with the requirements and restrictions herein, as described in other relevant Detailed Specifications, as indicated on the Drawings, and as directed by the Engineer.

1. The Contractor shall access the site from East Medical Center Drive through Nichols Drive only, and based on the following requirements:

A. The hours of work shall be as described in Detailed Specification “Hours of Work.”

B. The Contractor shall note that one side of Nichols Drive is used for valet and permit parking, and Lot M29 is used for permit parking, by the U of M Hospital Complex. U of M intends to maintain use of these parking spaces during construction. The Contractor shall limit the size of their trucks to those that can access Nichols Drive safely and not damage the parked vehicles. The cost of any damage to vehicles along Nichols Drive shall be the Contractor’s sole responsibility.

C. Should the Contractor or subcontractor work efforts require large trucks (intermediate or interstate semitrailers) which, in turn, would require the loss of the valet and permit parking spaces along Nichols Drive, the Contractor shall submit a request for clearing of the parking spaces to the Engineer and U of M, providing a minimum of 7 days advance notice. The approved clearing of the parking spaces along Nichols Drive shall be limited to the evening/overnight hours of 5:00 p.m. to 8:00 a.m. Monday through Sunday only. The request for parking space clearing shall be submitted as part of original progress schedule.

D. At no time shall the Contractor be allowed to use the parking spaces in Lot M29.

E. Should the Contractor elect to use the offsite City water source as described in Detailed Specification “Water Source” for their cured-in-place pipe (CIPP) liner curing process and require large trucks to transport the water from the designated water source, the Contractor may request a special, continuous extension of the Nichols Drive parking space clearing from the Engineer and U of M. However, the extension shall be limited to 72 consecutive hours between Friday and Monday only. During these periods, the Contractor shall remain in radio contact or communicate via other means with water tanker truck

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drivers to coordinate use of Nichols Drive and mitigate congestion and other impacts along the haul route. The request for parking space clearing shall be submitted as part of original progress schedule. Costs for complying with the coordination requirements of this Detailed Specification for offsite water source will not be paid for separately, but shall be included in the bid price of the related items of work.

F. Any changes to the Contractor's progress schedule resulting in revisions to previously approved dates for access along Nichols Drive shall be submitted to the Engineer and provide a minimum of 5 working days' notice for re-approval from the Engineer and U of M.

2. The Contractor shall maintain public pedestrian and vehicular access within the Arboretum in accordance with Detailed Specifications "Working Space" and "Maintenance of Traffic," as indicated on the Drawings, and as directed by the Engineer. All trails and drives indicated to remain open to pedestrian traffic shall be maintained to allow access at all times.

3. The Contractor shall maintain emergency vehicular access along Nichols Drive and to the Caretaker's House at all times. In the event that work operations entirely block Nichols Drive, the Contractor shall be expected to cease or alter operations as required to accommodate emergency vehicular access to the Caretaker's House within 10 minutes of being notified of said emergency.

4. All work zones shall be cleared, including removal of temporary traffic control devices and SESC devices prior to the Probability Ann Arbor Marathon, taking place on March 26, 2017, to the extent approved by the Engineer.

5. The Contractor shall at no time obstruct any part of East Medical Center Drive, unless as approved by U of M for installation of the ultrasonic level sensor, and plug if required, in MH 71-68799 and as required to monitor the sewer flow control system as described in Detailed Specification "Sewer Flow Control" and as shown on the Drawings.

d. Lighting Requirements for Sewer Lining Work.- Where sewer lining work at night is required and approved in advance by the Engineer, the night work shall be lighted to an average intensity of 10 foot-candles minimum. Sufficient light sources shall be provided to achieve this illumination requirement. The lighting shall allow the inspector to clearly see and inspect all work and operations. Lighting systems may be

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fixed, portable, or equipment mounted. A power source shall be supplied by the Contractor with sufficient capacity to operate the lighting system. The Engineer shall suspend all night work except for traffic control if lighting is inadequate on any nighttime work operation.

The lighting system should be directed at the work site only, shall be turned off when not needed, and shall not be left on overnight un-manned.

e. Measurement and Payment.- All costs for complying with the requirements of this Detailed Specification will not be paid for separately, but shall be included in the bid price of the affected items of work.

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DETAILED SPECIFICATION
FOR
AUDIOVISUAL RECORDING

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a. Description.- This work shall include providing a recording of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein.

The audiovisual recording shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared during the 3 week period immediately prior to the Preconstruction Meeting.
3. Furnished to the Engineer a minimum of 2 weeks prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Furnished to the Engineer either at, or prior to, the Preconstruction Meeting.
5. Carried out under the supervision of the Engineer.

The Contractor shall furnish 2 copies of the completed recording to the Engineer at, or prior to, the Preconstruction Meeting. An index of the recording, which will enable any area of the project to be easily found on the recording, shall be included. The Contractor shall retain a third copy of the recording for their own use.

Any portion of the recording determined by the Engineer to be unacceptable for the documentation of existing conditions shall be recorded again, at the Contractor's sole expense, and submitted to the Engineer prior to mobilizing onto the site.

b. Production.- The audiovisual recording shall be completed in accordance with the following minimum requirements:

1. **DVD Format/No Editing.-** The audiovisual recording shall be performed using equipment that allows audio and visual information to be recorded simultaneously and in color. The recording shall be provided on compact discs in DVD format. The quality of the recording shall be equal to or better than the standard in the industry. The recording shall not be edited.

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2. **Perspective/Speed/Pan/Zoom.-** To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 12 feet and the recording must proceed in the general direction of travel at a speed not to exceed 48 feet per minute (0.55 miles per hour). Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.

3. **Display.-** The recording equipment shall have transparent time and date stamp and digital annotation capabilities. The final copies of the recording shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing shall be included in the lower half of the frame in standard station format (i.e. 1+00). Below the stationing, periodic information is to be shown, including project name, name of area shown, direction of travel, viewing direction, etc.

On streets or in areas where there is no project stationing, assumed stationing shall be used, starting with 0+00 and progressing from west to east or from north to south.

4. **Audio Commentary/Visual Features.-** Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the recording route. Additional audio commentary shall be provided as necessary during the recording to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

5. **Visibility/Ground Cover.-** The recording shall be performed during a time of good visibility. The recording shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being recorded.

c. **Coverage.-** The audiovisual recording coverage shall include the following:

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

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2. **Private Property.**- Record all private property that may be utilized by the Contractor in conjunction with this project. These project areas must be disclosed by the Contractor prior to using them for the work of this project.

3. **Road Construction Area.**- The recording coverage shall:

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

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

C. Both sides of each street shall be recorded

4. **Offsite Water Source Route/Fuller Street/Glen Court Route.**- The entire route to/from the offsite water source at Fuller Park and to/from the Fuller Street/Glen Court intersection shall be recorded as indicated in this Detailed Specification, except as modified below:

A. The recording must proceed in the general direction of travel at a speed not exceeding 176 feet per minute (2 miles per hour).

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

C. The recording shall focus in particular at sidewalk ramps and other features likely to have been damaged or likely to be damaged as a result of existing traffic, temporary detoured traffic, and/or construction traffic. In these areas, recording may need to proceed much more slowly.

Only the side of street with the detoured traffic must be recorded. However, the Contractor is advised that portions of the detour routes may operate in opposite directions at different times. In these cases, both sides of the street shall be recorded separately.

5. **Private Property Bordering the Project Limits or Work Areas.**- Record all areas bordering the project where work is scheduled to occur or where construction

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traffic could damage the private property, including along E. Medical Center Drive, the entire length of Nichols Drive, Lot M29, Fuller Street/Glen Court intersection, Fuller Park, and the route to and from the project site to the Fuller Street/Glen Court intersection and Fuller Park. This is to include buildings, hydrants, pavements, curbs, driveways, decks, landscaping, trees, and all other similar features.

6. Other Areas.- The Contractor shall record, at their sole expense, other areas where, in their opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.

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

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

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

e. Measurement and Payment.- The completed work shall be paid for at the contract unit price for the following contract pay item:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Audiovisual Recording	Lump Sum

Audiovisual Recording shall include all labor, equipment, and materials required to perform the recording and to provide the finished recording the Engineer.

Payment will be made for Audiovisual Recording following the review and acceptance of the recording by the Engineer. Within 21 days following the receipt of the recording, the Engineer will either accept it and authorize payment, or require that any discrepancies in the recording be addressed prior to making payment.

LAND MONUMENTS, PROPERTY CORNERS, AND MARKERS 107B

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DETAILED SPECIFICATION
FOR
LAND MONUMENTS, PROPERTY CORNERS, AND MARKERS**

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It shall be the Contractor's responsibility to take all necessary precautions not to disturb, move, or destroy any land monuments, property corners, or markers delineating the boundaries of property along or near the work.

The Contractor shall notify the Engineer of any land monuments, property corners, or markers that will be affected by the construction in sufficient time so they may be properly protected or witnessed for later replacement by the Engineer.

Land monuments, property corners, or markers unnecessarily disturbed, moved, or destroyed by the Contractor shall be replaced by the City of Ann Arbor (City), in accordance with the requirements of the appropriate agency and Public Act. All costs associated with this replacement shall be charged to the Contractor.

The Contractor shall be aware that there are section corners and other City geodetic control points within or near the project boundaries. The re-setting of these points, if disturbed, will require significant cost and work to restore them to their current level of accuracy. Consequently, if they are disturbed or damaged, in the sole opinion of the Engineer, the City will re-set them to a condition equal to, or better than, that which currently exists. The Contractor will be backcharged for all costs incurred in re-establishing these points including, but not limited to, time charged to coordinate the work amongst all involved parties, expenses associated with "blue-booking" the points, and all other related costs.

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FOR
WORKER SAFETY AND SITE SECURITY

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a. General.- The Contractor shall carry out their operations and secure the site in strict accordance with the requirements of Section 104.07 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, "Contractor Obligations," all pertinent regulatory agencies, including, but not limited to, Occupational Safety and Health Administration (OSHA), Michigan Occupational Safety and Health Administration (MIOSHA), as well as all applicable manufacturer's safety requirements. The Contractor shall be aware that while all safety requirements are important, additional emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for cured-in-place pipe (CIPP) installation.

The Contractor hereby guarantees to the City of Ann Arbor (City) that all materials, supplies, and equipment as listed in the Contract Documents meet the requirements, specifications, and standards as provided for under the Michigan Occupational Safety and Health Act of 1976, as from time to time amended, and in force at the time of bidding this project, and all other applicable federal, state, and local ordinances, statutes, and laws.

The Contractor shall perform all work in accordance with the Construction Safety Standards as adopted by the Michigan Department of Labor Construction Safety Standards for Occupational Health adopted by reference and cross reference under authority of Sections 19 and 21 Act No. 154 of the Public Act of 1974, as amended, being 408.1021 of the Michigan Compiled Laws.

b. Safety Plan.- At the Preconstruction Meeting and prior to beginning any work, the Contractor shall submit a proposed Safety Plan to the Engineer detailing their safety plan and procedures and identifying all competent persons. The plan shall include a description of a daily safety program for the job site, their safety program for confined space entry in accordance with current OSHA and MIOSHA requirements, and all emergency procedures to be implemented in the event of a safety incident. All work shall be performed in accordance with the Contractor's submitted Safety Plan.

Prior to entry into any confined space, the Contractor shall submit to the Engineer a copy of their "daily" entry permit in accordance with current OSHA and MIOSHA requirements.

WORKER SAFETY AND SITE SECURITY

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WORKER SAFETY AND SITE SECURITY**

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c. Safety Representative.- The Contractor shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

d. Confined Space.- The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work including, but not limited to, confined space entry. The Contractor, including subcontractors, shall comply with all applicable laws and regulations and the City's safety programs, if any, relating to safety.

e. Trenches, Excavations, and Sanitary Structures.- During non-working hours, the Contractor shall properly secure any open trench, excavation, or sanitary structure with protective fencing and temporary cover(s). Temporary covers over sanitary chambers shall be capable of withstanding the weight of a human and other wildlife such as deer.

f. Measurement and Payment.- All costs associated with meeting the requirements of this Detailed Specification will not be paid for separately, but shall be included in the bid prices for the affected items of work as indicated on the bid form and in the Contract Documents.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HOURS OF WORK

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a. General Restrictions.- Hours of work shall be as stated in the Ann Arbor City Code Title IX, Chapter 119, Page 9.363, Monday through Saturday, between the hours of 7:00 a.m. and 8:00 p.m.

b. Exceptions.- During installation of the cured-in-place pipe (CIPP) lining, the Contractor may choose, in some cases, to perform nighttime work to facilitate construction during the inversion and curing processes. Additional requirements regarding this work are contained in Detailed Specification "CIPP Sewer Lining" and elsewhere in the Contract Documents. The Contractor shall include this work in their progress schedule, notify, and submit a request to the Engineer for permission to perform the nighttime CIPP work a minimum of 5 working days prior to beginning the work.

Maintenance of the sewer flow control may also require working outside the allowable hours of work ("off-hour" work). The Contractor shall provide anticipated off-hour work as part of their Sewer Flow Control Plan submittal(s) as contained in the Detailed Specification for "Sewer Flow Control."

Additional work restrictions are contained in the Detailed Specifications for "Project Schedule," "Maintenance of Traffic," "Working Space," "Construction Sequencing," and elsewhere in the Contract Documents. These work restrictions shall take precedence over the General Restrictions and Exceptions listed above.

The Contractor shall only perform work at night or on Sundays as required by the Contract Documents, unless there is a special need and the work is approved by the Engineer. All requests to work during off-hours shall be included in the Contractor's progress schedule and submitted to the Engineer for approval a minimum of 5 working days prior to beginning the work.

c. Noise Control.- All noise generated by construction activities shall not exceed 71 decibels (dBA) beyond the property line of the property on which the work is being conducted between 7:00 a.m. and 8:00 p.m., Monday through Saturday. The Contractor shall provide screening, noise absorption, and level II sound attenuation as required on equipment to meet the noise limitations set herein. Any "off-hour" work will require a temporary exemption from both the City of Ann Arbor City Administrator and the University of Michigan Executive Vice President and Chief Financial Officer or the Executive Vice President's written designee. A temporary exemption may be granted in accordance with each respective entities' code of ordinance.

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DETAILED SPECIFICATION
FOR
HOURS OF WORK

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d. Method of Payment.- The costs of night work, whether required by the Contract Documents or requested by the Contractor, shall not be paid for separately, but shall be considered included in the cost of the affected contract pay items.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WORKING SPACE

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a. General.- The Contractor is reminded of, and shall comply with, the requirements of Section 104.08 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, "Cooperation by the Contractor."

b. Contractor Use of Premises.- The Contractor shall limit construction traffic and access to areas indicated on the Maintenance of Traffic (MOT) Drawings, as specified in Detailed Specification "Maintenance of Traffic," as specified herein, and as directed by the Engineer.

The Contractor shall limit use of premises to allow the University of Michigan (U of M) Matthaei Botanical Gardens and Nichols Arboretum (MBGNA) Director and field staff the full use of Nichols Arboretum (Arboretum) and not obstruct access to the surrounding U of M Hospital Complex facilities or perform their work activities in such a manner as to impact existing vehicular parking along Nichols Drive or Lot M29. The Contractor shall limit use of premises to maintain public access in accordance with Detailed Specifications "Construction Sequencing," "Maintenance of Traffic," the MOT Drawings, as directed by the Engineer, and as described below:

1. Public Access

A. The Contractor shall maintain public pedestrian access along the stairs from East Medical Center Drive to Lot M29, to Caretaker's Drive, and other trails within the Arboretum at all times as indicated on the MOT Drawings.

B. The Contractor shall maintain vehicular access along Nichols Drive from East Medical Center Drive, throughout Lot M29, and along Nichols Drive from Lot M29 into and throughout the Arboretum at all times as indicated on the MOT Drawings.

2. U of M

A. The Contractor shall maintain pedestrian and vehicular access along Nichols Drive from East Medical Center Drive through the Arboretum and to Caretaker's Drive at all times as indicated on the MOT Drawings.

B. The Contractor shall maintain pedestrian and vehicular access to the Caretaker's House via Caretaker's Drive at all times.

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3. Emergency Vehicles to the Caretaker's House:

A. The Contractor shall maintain sufficient access for emergency vehicles along Nichols Drive and Caretaker's Drive to the Caretaker's House at all times.

B. The Contractor shall cooperate with the snow removal efforts of U of M in maintaining Nichols Drive and Caretaker's Drive. If necessary, the Contractor shall coordinate their work with that of snow removal crews to ensure that snow removal occurs as scheduled.

C. During periods of work that may entirely block Nichols Drive, the Contractor shall be prepared to cease, or alter, operations as required to accommodate emergency vehicular access to the Caretaker's House within 10 minutes, or less, of being notified of said emergency.

4. The Contractor shall at no time obstruct any part of East Medical Center Drive, unless as approved by U of M for installation of the ultrasonic level sensor, and plug, in MH 71-68799 as required for the sewer flow control system.

5. Limit work zones, staging areas, and parking for construction vehicles to areas as indicated on the Drawings.

6. Where the Contract Documents identify certain site elements within the construction limits, such as sidewalks, drives, and trails that must be kept open for the public or the City's use during construction, the Contractor shall be responsible for protection and maintenance of such elements as well.

c. Contractor Staging.- The Contractor shall stage equipment in the staging areas along portions of Nichols Drive within the Arboretum as indicated on the Drawings. Additional areas within the Arboretum and along Nichols Drive may be considered for Contractor staging upon written request to, and approval from, the Engineer. The Contractor shall be aware that lands to be used as a construction staging area within the project site are in short supply and, most probably, are not available. The Contractor shall be prepared to perform the work of this project without an owner-supplied, dedicated, construction staging area, or be prepared to obtain their own offsite construction staging area if necessary. The Contractor shall maintain pedestrian and emergency vehicle access through all work/staging areas along, and off of, Nichols Drive as indicated on the Drawings and as described herein.

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DETAILED SPECIFICATION
FOR
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d. Materials Storage.- The Contractor may store materials in the staging areas along the designated portions of Nichols within the Arboretum as indicated on the Drawings. The Contractor shall store materials in an orderly arrangement allowing maximum access and unimpeded drainage and traffic. Material storage shall at no time impede pedestrian or emergency vehicle access along Nichols Drive to Caretaker's Drive. The storage of hazardous materials onsite shall not occur without the express approval of the Engineer.

e. Work Zones/Areas.- The Contractor shall confine work areas to those indicated on the Drawings and as described herein.

1. The following areas are available for Contractor sewer cleaning and televising operations:

A. MH 71-70049: The area from Nichols Drive, to approximately 15 feet south of sanitary chamber, including areas east and west without breaching Wetland E, Wetland F, or the drainage ditch to the culvert under the stone bridge; all as indicated on the Drawings.

B. MH 71-69893: The area from the drive off Nichols Drive, up the treated lumber and gravel pedestrian steps; all as indicated on the Drawings.

C. MH 71-69892: The area from the drive off Nichols Drive to a 10-foot radius around the manhole, without breaching Wetland A; all as indicated on the Drawings.

D. MH 71-70062: The area from the drive off Nichols Drive to a 10-foot radius around the manhole, without breaching Wetland A; all as indicated on the Drawings.

E. MH 71-69895: The permanent access path from the amphitheater to the maintenance pad around the structure; all as indicated on the Drawings.

F. MH 71-69896: The area from the amphitheater to the manhole, including a 10-foot radius around the manhole, without damaging trees; all as indicated on the Drawings.

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
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WORKING SPACE**

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2. The following is the only structure available for Contractor cured-in-place pipe (CIPP) lining operations:

A. MH 71-70049: The area from Nichols Drive, to approximately 15 feet south of sanitary chamber, including areas east and west without breaching Wetland E, Wetland F, or the drainage ditch to the culvert under the stone bridge; all as indicated on the Drawings. The Contractor shall install the CIPP lining in both directions from this manhole to the project termini.

3. Flow diversion and lateral bypass pumping:

A. The following manholes/chambers shall be accessed for installation, maintenance, and monitoring of flow diversion plugs and level sensors; or for installation, maintenance, and monitoring of lateral bypass pumping system components: MH 71-71813, MH 71-68799, MH 71-68806, MH 71-69254, MH 71-70050, and MH 71-69895.

4. All other manholes/chambers:

A. All other manholes/chambers not identified above for use for cleaning, sewer televising, and/or CIPP lining shall be accessed for the following use only:

(1) Manhole Assessment and Certification Program (MACP) Level 2 manhole inspection.

(2) Cutting out the liner from inside the manhole after CIPP lining.

B. The Contractor shall protect these manholes and surrounding areas and shall not damage or remove any trees.

C. The Contractor shall avoid wetlands when accessing these manholes.

D. At no time is the Contractor allowed to remove the frame and cover or any other portion of these manholes.

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FOR
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f. Protection and Restoration.-

1. Protect trees and shrubs in the staging and storage areas as indicated on the Drawings.

2. The Contractor shall take care and protect, to the extent possible, sloped areas within work areas from Nichols Drive to manholes used for cleaning, televising, and/or lining operations.

3. Restore areas as described in Detailed Specification "Project Clean-Up and Restoration, Special."

4. Take all necessary measures to prevent spillage of fuel, oil, chemicals, and hazardous materials.

5. Provide secondary containment for diesel generators, equipment containing oil or grease, and storage of hazardous materials, in accordance with governing authorities or agencies.

6. In the case of any fuel, oil, chemical, or hazardous material spill, the Contractor shall notify the Engineer and the Michigan Department of Environmental Quality (MDEQ) Pollution Emergency Alerting System (PEAS) at (800) 292-4706. The Contractor shall be responsible for cleaning up the spill and remediating the site in accordance with MDEQ requirements and as approved by the Engineer at no additional cost to the project.

7. Keep storage and work areas clean.

8. Do not allow accumulation of scrap, debris, waste material, and other items required for construction of the work.

g. Site.- The Contractor shall maintain the site in a neat and orderly condition, including keeping paved surfaces clean, meeting the approval of the Engineer and U of M representatives at all times.

The Contractor shall inspect the site daily, and more often if necessary, to ensure the site is maintained in a neat and orderly condition. The Contractor shall also inspect storage areas weekly, and more often if necessary, to ensure the storage areas are maintained in a neat and orderly condition.

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WORKING SPACE**

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If the Contractor fails to correct unsatisfactory conditions within 24 hours after due notification, the Engineer may arrange for such work to be performed by other means at the Contractor's expense.

Costs for this work will not be paid for separately, but shall be included in the bid price of the contract pay item "General Conditions."

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN**

FTCH:EMS/AA:MGN

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Portions of the work to be performed under this contract are weather sensitive. Contractor shall be responsible for coordinating and scheduling their work in anticipation of the weather.

Sewer flow control must cease during wet weather conditions. Wet weather conditions are as defined in Detailed Specification "Sewer Flow Control."

In the event of a wet weather event, Contractor shall remove plugs installed for sanitary flow diversion from MHs 71-71813, 71-68806, and 71-69254. Plugs shall be reinstalled upon cessation of the wet weather event and as approved by the Engineer. Contractor shall coordinate with the City of Ann Arbor as required to close the center lane of Fuller Street at Glen Court to remove and reinstall, the plug in MH 71-71813 in accordance with Detailed Specification "Sewer Flow Control."

The Contractor shall not be compensated for the time and/or effort spent removing the temporary flow diversion plugs and the lateral bypass pumping system or for unused materials or downtime caused as a result of a wet weather event. The Contractor is solely responsible for repairing all damage to the work and to the site, including road infrastructure, road subgrades, underground utilities, any adjacent properties, and the like, which are damaged as a result of working in the rain or working in areas that are wet from recent precipitation.

The only exception to the above is as indicated in Detailed Specification "Extension of Time, Additional Compensation."

The costs of complying with this requirement shall not be paid for separately, but shall be considered included in the cost of the affected contract pay items.

EXTENSION OF TIME, ADDITIONAL COMPENSATION 108A

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
EXTENSION OF TIME, ADDITIONAL COMPENSATION**

FTCH:EMS/AA:MGN

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The Contractor shall notify the Engineer of their intent to submit a claim for additional compensation or an extension of time in accordance with the requirements of Section 104.10 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction. Failure to do so may be a basis for not approving the request for additional compensation or extension of time. The notification will allow the Engineer an opportunity to influence, keep records, and monitor the work.

Extensions of time will not be authorized due to delays caused by, or stemming from, the weather for the period between November 14th and April 16th unless any of the following conditions are present:

1. Air temperature (as measured from a thermometer provided, maintained, and installed by the Contractor in a location on the worksite, as mutually agreed upon between the Contractor and the Engineer) is below 15°F for a period of time longer than 48 consecutive hours.
2. Accumulations of snow in excess of 12 inches occur in any 24 hour period.
3. Freezing rain in excess of 1/4-inch occur in any 24 hour period.
4. Wet weather event, as defined in Detailed Specification "Sewer Flow Control" requiring the temporary removal of flow diversion plugs and lateral bypass pumping system.

Should the above mentioned weather conditions occur, and the Contractor requests an extension of contract time, the time extension shall only be for the realized delay to the controlling work operation.

The above weather delays shall not be considered as a basis for additional compensation on this project. The only exception shall be that if the temporary removal of the flow diversion plugs and lateral bypass pumping system occurred after the sewers had been cleaned, televised, prepped for lining, and approved by the Engineer for lining before the sewers were lined. In such an event, the Contractor may request compensation for the re-cleaning and re-televising of the affected pipes only. The re-cleaning must first be approved by the Engineer prior to the work beginning. No compensation shall be provided for the removal and re-installation of the plugs.

EXTENSION OF TIME, ADDITIONAL COMPENSATION 108A

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
EXTENSION OF TIME, ADDITIONAL COMPENSATION**

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In addition, if delays resulting from air temperature, snow accumulation, and/or freezing rain occur and the Contractor has their bypass pumping system in place and operational, the Contractor shall still be responsible to continuously protect and maintain in operation the complete sewer flow control system. Expenses related to maintaining the bypass pumping system shall not be considered to be additional costs or extra expenses during an authorized extension of time due to these weather-related time extensions.

The Contractor shall anticipate underground utility complications arising from the proposed utility work, unknown and/or fragile utilities, and utilities requiring investigation and or relocation. These utilities may be shown on the Drawings, correctly or incorrectly, or not at all, and may delay a controlling operation.

Additional compensation is defined as additional work, extra work, upward unit price adjustments, payments for down time, and the like.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREE REMOVAL

FTCH:EMS

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10/04/16

a. Description.- This work shall consist of removal of designated trees required to complete the work. Except as otherwise specified herein, all work shall be performed in accordance with the City of Ann Arbor (City) Public Services Area Standard Specifications, and as directed by the Engineer.

Trees identified for removal that are indicated on the Drawings have been approved by both the City and the University of Michigan (U of M) for removal. No additional trees shall be removed as part of this project without the written permission of both the Engineer and U of M. The Contractor shall be aware that the removal of additional trees to facilitate the work may not be allowed. Additionally, granting permission to remove additional trees may require substantial additional time for review of the request and/or the permission may not be granted. If the Contractor requests permission to remove additional trees and the permission is not granted, the Contractor shall perform the work without the removal of the trees at no additional cost to the project. Further, an extension of contract time will not be granted for the period of time from when the request was made until such time the request was either granted or denied.

The Contractor must clearly mark the trees for removal at least 1 week prior to the date of their intended removal.

The removal and disposal of trees greater than 6 inches in diameter (as indicated on the tree table) shall be paid for as indicated below. The cutting, removal, and disposal of trees less than 6 inches in diameter, bushes, brush, or the trimming of trees will not be paid for separately and shall be included in the item of work "General Conditions."

b. Construction Methods.-

1. **Removal.-** Cut and fell trees in a manner so as not to damage surrounding areas, fences, features, and adjacent trees designated to remain. Grub and remove stumps and roots. Backfill all resulting holes or excavations with Engineer approved material and dispose of all debris before ending the day's work.

Burning of any removed materials is strictly prohibited.

All trees removed as part of the work completed for this project shall be removed from the property unless otherwise requested by the City or U of M. All wood requested by the City or U of M shall be cut into logs approximately 10 feet in length and placed at a location onsite as designated by the Engineer.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TREE REMOVAL

FTCH:EMS

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

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Tree, Rem, 6 inch to 18 inch	Each

The items of work listed above shall be paid for by the number of trees actually removed. The unit price for these items of work shall include all labor, material, and equipment costs to perform the work as detailed herein.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES

FTCH:EMS

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10/04/16

a. General.- Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense.

Delays to the work due to utility repairs are the sole responsibility of the Contractor.

The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be backcharged an amount of \$50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including their subcontractor[s] and supplier[s]) work.

The Contractor is solely responsible for any damages to the utilities or abutting properties due to their work operations or construction debris.

Television inspection of the 36-inch sanitary sewer and 24-inch dual siphon pipes will take place before and after cured-in-place pipe (CIPP) lining operations. The City of Ann Arbor (City) may also choose to televise utility line(s) during or after the work of this project to inspect them for damages and/or construction debris. If post CIPP lining televising and/or subsequent City inspection shows damage and/or debris, all costs of such inspection, cleaning, repairs, etc., shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.

The costs for complying with the requirements of the Detailed Specification will not be paid for separately, but shall be included in the bid price of the contract pay item "General Conditions."

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTION OF ARBORETUM

FTCH:EMS

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10/04/16

a. Description.- This work shall consist of staging, gaining access to the site, and performing the work associated with the Contract while minimizing the impact on the existing environment and features within the Nichols Arboretum. Except as otherwise specified herein, all work shall be performed in accordance with the City of Ann Arbor (City) Public Services Area Standard Specifications, and as directed by the Engineer.

b. General.- Damage to the Nichols Arboretum by the Contractor's operation(s) or the operation(s) of the Contractor's subcontractor(s) or supplier(s) shall be repaired under the direction of the University of Michigan (U of M) and the City of Ann Arbor Natural Area Preservation Department. The required repairs may be performed by the U of M Matthaei Botanical Gardens and Nichols Arboretum (MBGNA) Grounds Department with all associated costs being charged directly to the Contractor. Payment of these charges is the Contractor's responsibility and shall not be paid for separately.

The Contractor's personnel or equipment shall not damage the existing vegetation along Nichols Drive, existing trails, or slopes. The Contractor will not be allowed to clear trees or brush to perform their work operations unless specifically indicated on the Drawings or approved by the U of M and the Engineer.

c. Protection of Trees.- Unless indicated for removal, all trees shall be preserved and protected. Any damage to trees or tree limbs, which is caused by the Contractor (or their designee[s]), regardless of height, shall be the Contractor's responsibility. The Contractor therefore assumes the condition of the trees and tree limbs in an "as-is" condition once the project begins.

The Contractor shall not trim or remove any trees without the approval of the U of M and the Engineer. This includes any trimming required for inversion towers or for access from Nichols Drive to inversion sites. All costs shall be the responsibility of the Contractor.

d. Protection of Drives, Trails, and Slopes.- The Contractor is permitted to use the entire stretch of Nichols Drive located within Nichols Arboretum and other work areas as indicated on the Drawings and as described in Detailed Specification "Working Space." Other existing trails may also be used for foot traffic, depending on the specific operations being performed, and as approved by the Engineer.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTION OF ARBORETUM

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Rubber tracked equipment up to 6 feet wide (i.e.: bobcat, mini excavator, etc.) and equipment up to 10 feet wide (i.e. compactor/mini excavator, loader, etc.) will be permitted on Nichols Drive, and in the areas designated as work or staging areas on the Drawings to be used for chamber and access path construction, cleaning operations, and cured-in-place pipe (CIPP) lining operations.

Any portion of Nichols Drive damaged by construction activities, including rutting from trucks, temporary pipe trenches, etc., shall be repaired in accordance with the aggregate drive detail on the Drawings and as approved by the Engineer.

The Contractor shall protect slopes within the Arboretum during construction operations to the extent possible. If, in the opinion of the Engineer, the existing slopes are too soft and construction equipment is causing rutting, the Contractor will be required to protect the slope from construction equipment with protection materials, or other means necessary, as approved by the Engineer. The Contractor will be required to maintain this protective material, including replacing defective, worn or broken materials, until the Engineer determines it is no longer needed and can be removed from the project. It is the Contractor's responsibility to remove and properly dispose of this material when it is no longer needed. It is the Contractor's responsibility to restore the trail to the satisfaction of the Engineer.

e. Protection of Arboretum.- Protect existing site features within the Arboretum. Any damage to features within the Arboretum, including, but not limited to, treated lumber and gravel pedestrian steps, benches, tables, monuments, boulders, lamp posts, stone bridge abutments, call boxes, amphitheater, etc., which is caused by the Contractor (or their designee[s]), shall be the Contractor's responsibility to restore or replace damaged features to a condition that is equal to, or better than, original condition as determined by the Engineer and/or parties having jurisdiction. The Contractor therefore assumes the condition of such features in an "as-is" condition once the project begins.

f. Material.- Slope and trail protection materials shall be temporary materials such as flotation mats, plates, planks, 3/4-inch plywood, or other similar materials as approved by the Engineer. The Contractor will not be allowed to place aggregate materials on the path to stabilize it.

g. Measurement and Payment.- All costs for complying with the requirements of this Detailed Specification will not be paid for separately, but shall be included in the bid price of the contract pay item "General Conditions."

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROTECTION OF WETLANDS

FTCH:EMS

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10/04/16

a. Description.- This work shall consist of protecting the wetlands located within Nichols Arboretum in accordance with Part 303 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and Chapter 60 of the City of Ann Arbor (City) Code of Ordinances: Wetlands Preservation Ordinance.

Any damage to wetlands, which is caused by the Contractor (or their designee[s]), shall be the Contractor's responsibility. The Contractor therefore assumes the condition of the wetlands in an "as-is" condition once the project begins. Damage to the wetlands by the Contractor's operation(s) or the operation(s) of the Contractor's subcontractor(s) or supplier(s) shall be repaired under the direction of the University of Michigan (U of M) and City. The required repairs may be performed by the U of M Matthaei Botanical Gardens and Nichols Arboretum (MBGNA) Grounds Department with all associated costs being charged directly to the Contractor. Payment of these charges is the Contractor's responsibility and shall not be paid for separately.

Wetlands shall be protected from erosion, turbidity, siltation, and contamination. Contractor shall not perform any of the following actions within wetland limits without a permit from the Michigan Department of Environmental Quality (MDEQ) or without the approval of the City and U of M:

1. Deposit or permit the placing of fill material.
2. Excavate or remove soil or vegetation.
3. Construct, operate, or maintain any use or development.
4. Drain surface water, such as diverting water to another area via ditch, pump, or drain.
5. Direct water from an upland activity into a wetland.

All costs shall be the responsibility of the Contractor.

b. Material.- Wetlands shall be protected as indicated on the Drawings using protective construction fence, silt fence, snow fence, or other similar materials as approved by the Engineer.

c. Measurement and Payment.- All costs for complying with the requirements of this Detailed Specification will not be paid for separately, but shall be included in the bid price of the contract pay item "General Conditions."

AGGREGATE ACCESS PATH AND MAINTENANCE PAD

CITY OF ANN ARBOR DETAILED SPECIFICATION FOR

AGGREGATE ACCESS PATH AND MAINTENANCE PAD

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a. Description.- This work shall consist of constructing a permanent two-track aggregate access path from Nichols Drive, along the south edge of the amphitheater area and through the woods, to gain access to sanitary chamber MH 71-69895; furnishing and installing swing gate, as well as constructing an aggregate maintenance pad adjacent to the chamber as indicated on the Drawings. Except as otherwise specified herein, all work shall be performed in accordance with the City of Ann Arbor (City) Public Services Area Standard Specifications, Sections 306 and 902 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, as indicated on the Drawings, and as directed by the Engineer.

b. Construction.- The route of the pathway and area for the maintenance pad as indicated on the Drawings shall be considered fixed and shall not be altered unless approved by the City and the University of Michigan (U of M). The aggregate path through the woods shall be graded to promote positive drainage and follow the existing topography to the extent possible. Excavation and embankment will be required.

The aggregate access path through the amphitheater shall follow the existing topography to blend into the existing land form to the extent possible. The Contractor shall coordinate with the U of M Nichols Arboretum Director and the Engineer for approval of the grading prior to acceptance of the work. The path through the amphitheater shall include a thin layer of topsoil (1-inch thick) and be seeded as indicated on the Drawings.

A swing gate shall be installed at the beginning of the access path, west of the secondary trail on the west side of the amphitheater area, as shown on the Drawings, and as directed by the Engineer.

The Contractor shall remove all downed trees (regardless of diameter and length), trees less than 6 inches in diameter, brush, shrubs, and all other vegetation and topsoil along the proposed path and maintenance pad near MH 71-69895, and properly dispose of them offsite. The work required to clear the site shall not be paid for separately, but shall be included in contract pay item "General Conditions." The Contractor shall limit the clearing operations to the areas indicated on the Drawings. The cutting and removal of trees equal to or greater than 6 inches in diameter shall be paid for separately, as described in Detailed Specification "Tree Removal."

AGGREGATE ACCESS PATH AND MAINTENANCE PAD

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
AGGREGATE ACCESS PATH AND MAINTENANCE PAD

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The Contractor's personnel or equipment shall not damage the area surrounding the proposed path and maintenance pad, including vegetation along the existing trail and sloped areas. The Contractor shall not be allowed to clear trees or brush to perform their work operations unless specifically shown on the Drawings or approved by the Engineer and U of M.

All materials are to be delivered to the site through the access points indicated on the Drawings. It will be the Contractor's responsibility to move materials with equipment meeting the requirements above to the site of the work.

c. Material.- The aggregate access path shall be constructed of crushed limestone aggregate and native soil. Aggregate materials shall be provided in accordance with the 2012 edition of the MDOT Standard Specifications for Construction, as indicated on the Drawings, and as approved by the Engineer. Material shall be subject to the approval of the Engineer.

The swing gate shall be fabricated of steel meeting requirements of ASTM A53, hot-dip galvanized in accordance with ASTM A153, and meeting all requirements as indicated on the Drawings.

1. Submittals.- The Contractor shall provide fabrication/shop drawing of the proposed swing gate for Engineer review and approval in accordance with Section 104.02 of the 2012 edition of the MDOT Standard Specifications for Construction.

For each submittal and re-submittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the re-submitted plans, calculations, and descriptions. The Engineer's acceptance of the plan is required before beginning the work. Re-submittals shall be reviewed and returned to the Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in their schedule.

AGGREGATE ACCESS PATH AND MAINTENANCE PAD

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR

AGGREGATE ACCESS PATH AND MAINTENANCE PAD

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d. Measurement and Payment.- The completed work as measured for this item of work will be paid for at the contract unit price for the following contract pay items:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
1" x 3" Aggregate, 12-inch.....	Square Yard
Aggregate Surface Cse, 6-inch	Square Yard
Topsoil Surface, Furn, 1-inch, Modified.....	Square Yard
Seeding, Mixture TDS	Lb
Swing Gate.....	Each

Materials required to construct the aggregate access path, the aggregate access path with topsoil and seed, and aggregate maintenance pad: "1" x 3" Aggregate, 12-inch," "Aggregate Surface Cse, 6-inch," and "Topsoil Surface, Furn, 1-inch, Modified" will be measured by area in square yards; and "Seeding, Mixture TDS" will be measured in Lb based on seeding rate as specified in the 2012 editions of the MDOT Standard Specifications for Construction. The swing gate will each be paid for at the contract unit price. The contract pay items listed herein shall be payment in full for all labor, material, and equipment necessary to furnish and install the items of work listed above, and shall include, but is not limited to, moving materials to and throughout the installation location, disposal, and all other items necessary to complete the work, whether specifically mentioned or implied.

All preparation and brush removal, clearing and grubbing, removal of downed trees, top soil removal, earth excavation, embankment, and soil compaction shall be included in the bid price for "General Conditions."

Restoration of areas disturbed by the Contractor's operations shall be included in the bid price for "Project Clean-Up and Restoration, Special."

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SEWER FLOW CONTROL

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a. Description.- The work covered by this Detailed Specification shall consist of furnishing all labor, supervision, tools, equipment, appliances, materials, incidental items, and the installation, operation, and maintenance needed to perform all operations in connection with the diversion of flow and bypass pumping of sanitary sewage for cleaning and inspecting of sewers and manholes, and sewer rehabilitation procedures. The purpose of which is to provide un-interrupted sewerage service at all times and to prevent sewage overflows.

It is the intent of this project to divert dry weather flow upstream of the 36-inch sanitary sewer within the work zone to other City of Ann Arbor (City) sanitary sewers by installing plugs in the sewer system. The flows from the various laterals to the smaller diameter sewers connected to the 36-inch sanitary sewer in the work zone shall be bypass pumped to a manhole either upstream of the plugs or downstream of the work zone. The design, installation, and operation of the temporary sewer flow control system shall be the Contractor's sole responsibility.

When working inside manholes or sewer, the Contractor shall exercise caution and comply with Occupational Safety and Health Administration (OSHA) and City requirements for working in confined spaces.

The Contractor shall manage, plan, and execute their operations such that there will be no backups, leaks, or unauthorized discharges of sewerage. The Contractor shall be completely responsible for the proper clean-up and any environmental remediation as may be required by the City, the University of Michigan (U of M), or the Michigan Department of Environmental Quality (MDEQ) for any backup, leak, spill, or sanitary sewerage overflow.

b. Submittals.- The Contractor shall provide a detailed Sewer Flow Control Plan to the Engineer for review and acceptance prior to the start of any flow control work. This plan must include descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing flow. The Sewer Flow Control Plan must be specific, including such items as schedules, locations, elevations, capacities of the equipment, materials, and all other incidental items necessary and/or required to ensure proper protection of the facilities, including protection of existing structures and pipes, and compliance with the requirements and conditions specified in these Contract Documents. The flow control plan shall be submitted to the Engineer for review and approval in accordance with Section 104.02 of the 2012 edition of the Michigan Department of Transportation Standard Specifications for Construction. No construction

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SEWER FLOW CONTROL

FTCH:EMS/AA:MGN

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shall begin until all provisions and requirements have been reviewed and accepted by the Engineer.

For each submittal and re-submittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the re-submitted plans, calculations, and descriptions. The Engineer's acceptance of the plan is required before beginning the work. Re-submittals shall be reviewed and returned to the Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in their schedule.

Sewer Flow Control Plan submittal shall include at a minimum:

1. Overall flow control plan and sequence of construction;
2. Flow control schedule including times when the flow control system shall be temporarily shut down and flow allowed to return to normal operations;
3. Overall plan for removal of flow control system during wet weather events and/or emergency situations;
4. Plan for providing redundancy for all aspects of the system especially the plugs;
5. Safety Program for confined space entry and procedure for entering manholes and installing plugs under live flow conditions;
6. Emergency clean-up plan should a spill occur or backups in the system occur. The plan should include contact names and 24 hour phone numbers;
7. Procedure for continuous (24 hour) monitoring of system, including verifying that plugs are sealed and lateral bypass pumping system is operating. The plan is to include type and location of level sensors, method of installation, set elevations of sensors, and continuous monitoring system;
8. Video recording of the sewer televising of the portion of the 36-inch sanitary sewer between MHs 71-68806 and 71-69254, and a 360° view of the buried manhole including manhole frame, cover, and location of buried manhole as measured from the downstream manhole.

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DETAILED SPECIFICATION
FOR
SEWER FLOW CONTROL

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9. Maintenance of traffic plan for plug installation and removal in public roadways;

10. Sewer plug types, method of installation and removal, anchors and restraints, and hydraulic head limits;

11. Lateral bypass pump sizes, capacities, power requirements, and number of each size to be provided at each manhole including redundancy;

12. Calculations giving flow capacity provided by each pump given the system's Total Dynamic Head (TDH), including the calculations that are used to derive the system TDH. This data should also include the calculations determining what the Net Positive Suction Head available is in comparison to the Net Positive Suction Head required by each pump. Pump curves shall be submitted;

13. Number, size, material, and location of lateral bypass pumping suction and discharge piping, procedure for protecting lines, and location of bypass pumping discharge manhole;

14. Lateral bypass pumping system flushing and drainage plan;

15. Buried bypass pipe locations and details;

16. Environment protection including pump containment and leak detection;

17. Method of protecting discharge manholes or structures from erosion and damage;

18. Method of noise control for each pump; and,

19. Design plans for access to bypass pumping locations indicated on the Drawings.

c. Flow Diversion Equipment.- Provide materials and equipment suitable for, and known to be reliable to meet, the flow diversion requirements as shown on the Drawings and as needed for the Contractor's operations.

The plug shall be a temporary plug that allows for quick removal in case of emergency or wet weather situation and re-installation after wet weather event has passed. Plugs shall be capable of withstanding minimum static head pressure of

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
SEWER FLOW CONTROL

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15 feet. Plugs shall include form or bracing, anchoring, or restraint to keep plugs properly installed. Plugs should be of the type capable of being installed under live flow conditions and in depths exceeding 35 feet as shown on the Drawings. Plugs should be able to be installed in either the incoming or outgoing pipe in a manhole and allow for quick removal under surcharged conditions.

Pressure gages shall be installed with the plugs to continuously monitor the plugs and adjust the air pressure as needed to maintain full blockage of flow.

Ultrasonic level sensors shall be installed, at a minimum, at the locations shown on the Drawings. The Contractor may elect to install sensors in other locations at their expense if they so choose. The Contractor shall be responsible for the installation and maintenance of the sensors. The level sensors shall provide continuous level readings that the Contractor shall be able to review remotely to monitor the level in the system during flow diversion. The level sensors shall provide notifications and alarms to allow the Contractor time to remove the plugs should an emergency or a wet weather event occur.

d. Lateral Bypass Pumping Equipment.- Provide materials and equipment suitable for, and known to be reliable to meet, the bypass pumping requirements.

The pumps must be capable of passing a minimum of a 3-inch solid. All pumps must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.

Equipment used for bypass pumping shall be sufficient to handle anticipated average and peak flows from each sewer. The Contractor shall maintain sanitary sewer flows within their bypass pumping system, including all wet weather flows.

The locations and approximate flow rates for each of these laterals is as follows:

<u>Structure</u>	<u>Lateral Size</u>	<u>Average Dry Weather Flow*</u> (cfs)	<u>Peak Flow**</u> (cfs)	<u>Rain Event</u> (in)
MH 71-69254	10"	0.402	1.05	2.63
MH 71-70050	8"	0.116	0.329	2.63
MH 71-69895	8"	0.035	0.134	0.84

*Average dry weather flow is based on monitoring data from August 24-September 7, 2016.

**Peak flows are based on measured flows during the associated rain event with an additional 20% safety factor included.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SEWER FLOW CONTROL

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The Contractor shall take into account seasonal variations and include a safety factor above the indicated peak flow values in sizing pumping equipment.

For sanitary sewerage, bypass piping shall be PVC Schedule 80, or equivalent, with solvent welded joints; or HDPE with butt fused joints. The Contractor shall perform hydrostatic testing of bypass pump discharge pipes in accordance with ASTM F2164 for HDPE or ASTM F2261 for PVC pipe, prior to operating bypass pumping system to ensure structural integrity of pipeline. Any defects or leaks found during testing shall be repaired and the pipeline shall be re-tested until results are satisfactory in accordance with the ASTM standard, and as acceptable to the Engineer.

1. Redundant Equipment.- The Contractor shall have redundant flow diversion equipment including, but not limited to, plugs and level sensors, available for immediate use at the job site at all times in the event of a failure.

Any damage to the Contractor's equipment, sewer system, or delays to the Contractor's operations due to equipment or plug failure/leakage shall be the Contractor's sole responsibility and no additional payment shall be made for these occurrences. The Contractor shall take all necessary precautions to verify that the plugs and flow diversion plan is operational prior to performing the work.

The Contractor shall have redundant lateral bypass pumping equipment installed and ready for immediate operation and use in the event of an emergency or primary system breakdown or failure. The standby system shall be capable of pumping dry weather and peak flow. The standby pump(s) shall not be considered as any part of the primary system as designed for peak flow. The Contractor shall also furnish and have available onsite, and ready for operation, redundant pumping ancillary equipment in case of any failure of the pumping system including piping, electrical equipment, pipe appurtenances, etc. Redundant pumping facilities shall also include having a backup power generator in case the primary power source fails.

The Contractor shall not obstruct flows in the sewer unless the primary and redundant equipment is onsite and in operable condition and authorization has been granted by the Engineer.

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e. Flow Diversion.- Flows enter the 36-inch Southside Interceptor Sanitary Sewer flowing through Nichols Arboretum through two main sewers. The first is the 42-inch reach of the Southside Interceptor Sewer located in Fuller Street that reduces to the 36-inch Nichols Drive Sewer. The second sewer is a 21-inch sewer that collects flows from the U of M Hospital Complex and enters into the 36-inch Southside Interceptor in the Nichols Arboretum through a buried manhole.

The Contractor shall divert flows from the 42-inch Fuller Street Sewer by installing a plug on the downstream side of the 42-inch pipe flowing east at MH 71-71813 and diverting the flow north into the 42-inch bypass sewer at MH 71-71953. The east/west 42-inch pipe passes through the manhole with the top half of the pipe removed. The east/west 42-inch pipe is approximately 3.6 feet higher than the 42-inch pipe to the north.

The Contractor shall divert flows from the 21-inch Hospital Sewer as shown on the Drawings and as described in the Flow Control Sequence also shown on the Drawings. The Contractor shall be aware that there is a buried manhole located on the existing 36-inch sanitary sewer at approximate Station 1+70 that may contain a frame and cover that could leak during the diversion of sanitary sewer flows. The Flow Control Sequence described on the Drawings contains a diversion sequence to be employed by the Contractor to determine the possibility of leakage from the buried manhole and a plan to avoid it.

A third plug shall be installed in the downstream 36-inch pipe in MH 71-68806. This plug will act as a redundant plug to the one in MH 71-71813. Based on existing record drawings, there are no lateral connections into the 42-inch sewer between MH 71-71813 and MH 71-68806. However, the Contractor shall be required to verify this by regularly inspecting MH 71-68806 and verifying that no flow is accumulating in the manhole.

The Contractor shall note that average dry weather flow in the 36-inch sanitary sewer averaged between 9 and 17 cubic feet per second (cfs) based on flow monitoring data from August 24 through September 7, 2016. The split of flow between the 42-inch sewer from Fuller Street and the 21-inch sewer from the hospital is unknown. The Contractor is to take all necessary precautions when installing the plugs in these sewers under live flow conditions.

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The Contractor shall install the level sensors as shown on the Drawings in MH 71-71813 and MH 71-68799. Level sensor shall be mounted in the manholes at an elevation above anticipated surcharge conditions and as directed by the Engineer. MH 71-68799 is a manhole that is approximately 50 feet deep with an intermediate platform at an approximate elevation of 806.00 feet. The level sensor shall be mounted below the intermediate platform to properly measure the water level in the manhole. Additional level sensors may be required by the Contractor based on their cleaning and lining procedures.

The Contractor is responsible for obtaining any approvals and permits for lane closures and placement of temporary equipment within public ways from the Agency having jurisdiction. The Contractor shall provide the City a minimum of 7 days advance notice for flow diversions/installation of plugs and consequent lane closures. Work within the Fuller Street/Glen Court intersection shall be limited to the hours of 9:00 a.m. to 3:30 p.m. Due to the location of MH 71-68799, the Contractor shall be required to coordinate access to this manhole with the U of M Hospital Complex staff and shall avoid unnecessary traffic obstructions; this will require the work needed to perform the installation(s) be completed by early morning (prior to 7:00 a.m.) or shall not begin until late night (after 7:00 p.m.) and shall be as approved by U of M. Should a wet weather event occur, the Contractor will be allowed to enter East Medical Center Drive after providing notice to the Engineer.

The Contractor shall install temporary traffic control measures as indicated on the maintenance of traffic plans and as approved by the Engineer.

Copies of the record drawings from the U of M Hospital Replacement Project and the associated utility work have been included with the set of Drawings for the Contractor's reference. The City has video inspection of MH 71-68799 available to the Contractor upon request.

The Contractor shall install plugs and level sensors as shown on the Drawings and test the system for a minimum of 48 hours prior to the start of any other work onsite. The Contractor, City, and Engineer shall review the flow diversion during the testing period, including flow levels in the manholes. The Contractor shall not start any other work onsite until acceptance of the diversion test.

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f. Lateral Bypass Pumping - Service laterals from the U of M Hospital Complex enter the mainline sewer at 3 sanitary structures and shall be bypass pumped to the downstream bypass pumping manhole. At no time shall plugging and/or blocking of flow from the U of M Hospital Complex service connections be permitted.

The Contractor shall construct and maintain bypass pumping facilities as needed that will pump the flow rates as specified elsewhere herein. The Contractor shall provide the City and U of M with a minimum of 7 days advance notice prior to initiating the sanitary sewer bypass pumping system.

The Contractor is responsible for obtaining any approvals for placement of the temporary equipment and/or piping within public ways from the Agency having jurisdiction.

The Contractor shall provide an adequate labor force and have designated personnel onsite for maintenance and operation, and emergency back-up service, of the bypass pumping facility 24 hours per day 7 days per week during bypass operations.

Anytime bypass pumping operations cease as required due to weather conditions described in Detailed Specification "Extension of Time, Additional Compensation" or as required by the Engineer, the Contractor shall drain the bypass pump discharge line back into the sanitary system as described in the Sewer Flow Control Plan and as directed by the Engineer to avoid freezing of the pipeline. Under no circumstances shall sanitary sewage within the bypass discharge line be drained to the Huron River.

The Contractor is to arrange for and provide all necessary temporary power, electrical service, board switches, etc. as required by DTE Energy and the National Electrical Code (NEC) current edition to provide temporary bypass pumping.

All bypass pumping discharge pipes shall be protected from the pipe header to the discharge structure. The discharge pipe shall be routed along the west/south (non-river) side of Nichols Drive and shall be routed to avoid adversely impacting all wetlands. The Contractor shall provide necessary fittings or deflection in pipe to route pipe as necessary to minimize environmental impact and conflict with pedestrian, construction, and emergency vehicle traffic. When the bypass pipeline crosses drives or trails, or when pipeline is within any Contractor work zone/staging area, the Contractor shall place the bypass pipeline in a casing pipe and bury in temporary trenches with compacted backfill as indicated on the Drawings, as required for the Contractor's operations, and as approved by the Engineer. All work associated with

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temporary bypass discharge pipe trench, including piping, fittings, deflections, casing, spacers, trenching, and backfill shall be included in the contract pay item "Sewer Flow Control."

1. Wet Weather Event.- A wet weather event is defined as an event that causes the flow in the system to surcharge to the following elevations:

Level Sensor 1 – MH 71-71813: 782.00 feet

Level Sensor 2 – MH 71-68799: 787.00 feet

When a wet weather event occurs, the Contractor shall cease all operations in the sewer system, remove all three plugs, and allow sewage to flow back into the Southside Interceptor Sewer located in the Nichols Arboretum. The plugs shall be removed as not to cause a surge downstream. At no time is the flow in the system allowed to raise to the following elevations due to the Contractor's operations:

Level Sensor 1 – MH 71-71813: 784.00 feet

Level Sensor 2 – MH 71-68799: 789.00 feet

It is the Contractor's responsibility to monitor the weather and verify weather conditions prior to the start of any work that could have an impact on the capacity of the affected sewers. Any damage to the Contractor's equipment, sewer system, or delays to Contractor's operations due to wet weather conditions shall be the Contractor's sole responsibility and no additional payment shall be provided.

The only exception to that is if the temporary removal of the flow diversion plugs and lateral bypass pumping system occurred after the sewers had been cleaned, televised, prepped for lining, and approved by the Engineer before the sewers were lined. In such an event, the Contractor may request compensation for the re-cleaning of the pipes only. The re-cleaning must first be approved by the Engineer prior to the work beginning.

No compensation shall be provided for the removal and re-installation of the plugs due to wet weather events as described in Detailed Specification "Working in the Rain."

g. Noise Control.- All noise generated by the bypass pumping operation shall not exceed the sound limits, and shall follow necessary procedures as required for temporary exemptions, as defined in Detailed Specification "Hours of Work."

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h. Flow Diversion and Bypass Pumping Completion.- At the end of the flow control operation, and after receipt of written permission from the Engineer, the Contractor shall remove all flow diversion and bypass pumping equipment, including level control system, temporary power equipment, and suction/discharge piping in a manner that permits the sewage flow to return to normal without overflowing to the environment, surcharging, or causing other major disturbances downstream. The Contractor shall restore all disturbed areas and structures, and restore all pavement in accordance with Detailed Specification, "Project Clean-Up and Restoration, Special" and as directed by the Engineer.

The duration of the bypass pumping shall be determined by the Contractor as needed to perform the work under this contract while maintaining un-interrupted sewage service.

i. Flow Control Precautions.- When flow in a sewer line is bypassed or plugged, sufficient precautions must be taken to protect the sewer liner and the Contractor's operations from damage that might result from sewer surcharging. Further, precautions must be taken to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved. At no time shall sewage be pumped in or allowed to flow into a catch basin, storm sewer, or open watercourse.

j. Measurement and Payment.- The completed work shall be paid for at the contract unit price for the following contract pay item:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Sewer Flow Control	Lump Sum

The contract unit price for this item shall include all labor, supervision, tools, permits, shop drawing submittals, materials, equipment, operation, any incidental items, and all other work as noted on the Drawings and as specified herein to allow the Contractor to perform the work of diverting and bypass pumping flows as detailed herein.

The installation, maintenance, operation, monitoring, and removal of the level sensors shall not be paid for separately, but shall be included in the item of work "Sewer Flow Control." The televising of the 36-inch sanitary sewer between MHs 71-68806 and 71-69254, and the location of the buried manhole, shall also be included in the item of work "Sewer Flow Control."

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The cost for the sewer flow control shall be paid for as a Lump Sum item regardless of the duration, number of, and/or duration of the wet weather events encountered, flow encountered, weather conditions, or number of times flow control system is temporarily removed and re-installed. The cost for the sewer flow control shall be paid for as a lump sum regardless of whether the second plug is installed in MH 71-69254 or in MH 71-68799.

30% of the lump sum shall be paid for Sewer Flow Control following the initial installation, 48-hour test, and acceptance of the system by the Engineer. The remainder of the cost shall be paid for at the conclusion of all flow diversion activities and after the removal of all equipment from the site.

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a. General.- This work shall consist of furnishing a source of water for performing sanitary sewer cleaning and cured-in-place pipe (CIPP) lining operations including, but not limited to labor, materials, and equipment required to obtain and transport water from source.

b. River Water Source.- The Contractor may elect to use water from the Huron River as a water source for their operations. The water may be pumped from an Engineer-approved location, within the City of Ann Arbor (City) Nichols Arboretum property limits. The Contractor shall furnish and install pump(s), suction line, and discharge piping (intake line) as described herein, as indicated on the Drawings, and as approved by the Engineer. The Contractor shall provide the power source for operating the pump(s).

The pump(s) shall include necessary isolation and check valves and be sized by the Contractor to provide the required flow of water needed to perform the work, but at no time shall the pumping rate exceed 200 gallons per minute (gpm) or a total water quantity withdrawn exceeding 100,000 gallons/day, averaged over 30 days. The Contractor shall include flow meter(s) on the pump discharge to monitor river pump flow rate and log daily quantities of water withdrawn from the river.

The river water pump(s) shall be installed on a level surface near the river bank within a secondary containment dike to protect the river from any leaking oils, lubricants, etc., from within the pump body. The Contractor shall protect the riverbed, river bank, and slope up to Nichols Drive from their operations, and repair or restore any damage to original condition as acceptable to the Engineer. The Contractor shall inspect the river water system daily for signs of stress, leakage, or failure. Any over-stressed, leaking, or failing equipment shall be immediately repaired or removed from the site and replaced with acceptable equipment. The repair or replacement of the equipment shall take precedence over the sewer cleaning or lining operations.

c. City Water Source.- The Contractor may elect to use water from the City-approved fire hydrant in Fuller Park, using the truck route as indicated on the Drawings. Fuller Park is not maintained during the winter months and the Contractor may need to remove snow, ice, or other material to safely access and use the fire hydrant, at no additional cost to the project.

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Use of an approved double check backflow assembly shall be required. Contractor shall obtain backflow assembly, hydrant meter, and vandal-resistant hydrant meter cage from the City of Ann Arbor Customer Services Unit, and coordinate installation of equipment. Contractor shall pay current market price for all water usage. Obtaining and transporting "City Water" for use on the project will not be paid for separately.

The Contractor shall protect the fire hydrant and backflow preventer from freezing and damage. The hydrant used by the Contractor shall be pumped down by the Contractor to prevent freezing. If the fire hydrant becomes frozen, or is not properly closed or pumped down, or otherwise damaged by the Contractor, it shall be repaired by the Contractor at no additional cost to the project. These costs are deemed to include the removal and replacement of sidewalk and any other items that are required to be removed and replaced in order to properly replace the fire hydrant.

If using the hydrant for a water supply, the Contractor shall coordinate their activities requiring the water source to occur within the time limitations and constraints as described in Detailed Specification "Construction Sequencing." The Contractor shall coordinate their activities to transport the water from Fuller Park to the site on a timely basis so as to not block East Medical Center Drive or Nichols Drive with water tanker trucks or impact valet and permit parking within Lot M29 without prior approval from the Engineer and the University of Michigan.

No additional payment shall be provided for delays encountered by the Contractor in providing water to the site.

d. River Water Source Materials.- The Contractor shall submit the river water pump proposed for use to the Engineer for approval prior to installation. Submersible pumps placed in the Huron River shall not be allowed.

The river water suction and discharge (intake) piping shall be PVC Schedule 80 with solvent welded joints; HDPE with butt fused joints; or completely watertight flexible hose.

All river water pump and pipe materials shall be compatible with outdoor, cold weather conditions. Any costs incurred relating to damaged equipment or downtime due to freezing of river water system shall be the sole responsibility of the Contractor.

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e. Measurement and Payment.- All work required to provide the water source for sewer cleaning and CIPP operations as described in this Detailed Specification including, but not limited to, accessing, operating, maintaining, and protecting the City fire hydrant in a useable condition will not be paid for separately, but shall be included in the related items of work.

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a. Description.- This work shall consist of the cleaning and video inspection of sewer and siphon pipes, chambers, and manholes, and providing the required documentation as described herein. All work shall be performed in accordance with the City of Ann Arbor (City) Standard Specifications, except as modified herein, and as directed by the Engineer.

The Contractor is responsible for video recording and cleaning the pipe before lining, and video recording after lining. Pipeline inspection and videotaping shall be in accordance with National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) requirements.

The Contractor is responsible for inspecting all manholes and chambers as indicated on the Drawings in accordance with NASSCO Manhole Assessment and Certification Program (MACP) Level 2 requirements.

b. Submittals.- The Contractor shall provide a detailed sewer cleaning and televising plan to the Engineer for review and acceptance prior to beginning the work. This plan must include descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing flow. The cleaning and televising plan must be specific, including such items as schedules, locations, type of equipment, details on water source, plans for disposal, and all other incidental items necessary and/or required to ensure proper protection of the facilities and surroundings, including protection of the access locations from damage, and compliance with the requirements and permit conditions specified in these Contract Documents.

The cleaning and televising plan shall be submitted to the Engineer for review and approval in accordance with Section 104.02 of the 2012 edition of the Michigan Department of Transportation Standard Specifications for Construction. No work shall begin until all provisions and requirements have been reviewed and accepted by the Engineer.

For each submittal and re-submittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the re-submitted plans, calculations, and descriptions. The Engineer's acceptance of the plan is required before beginning the work. Re-submittals shall be reviewed and returned to the Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in their schedule.

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Sewer cleaning and televising plan and submittals shall include at a minimum:

1. Copy of PACP/MACP Certifications for sewer televising personnel and manhole inspection personnel;
2. Proof of PACP/MACP certified software;
3. Safety program for confined space entry;
4. Information on equipment, trucks, tanks, etc., including, but not limited to, dimensions, required turning radius, fuel type, any special requirements, etc.;
5. Staging areas for equipment, trucks, tankers, etc.;
6. Schedule for cleaning and televising of pipe lines, manholes, and chambers. Schedule shall include time for Engineer to perform inspections of chambers MH 71-69893 and MH 71-69895;
7. Planned hours of operation, including equipment idling, etc.;
8. Number, size, material, and location of hose/piping;
9. Information on cleaning equipment;
10. Procedure for cleaning chambers MH 71-69893 and MH 71-69895;
11. Siphon dewatering plan;
12. Sludge and debris dewatering, transportation, and disposal procedure and location;
13. Environment protection including equipment and pipe containment, leak detection, and/or remediation plan; and,
14. Method of noise control for all equipment.

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c. Construction.- The Contractor shall carry out their operations in strict accordance with all Occupational Safety and Health Administration (OSHA), Michigan Occupational Safety and Health Administration (MIOSHA), and manufacturer's safety requirements.

1. **Safety.** – The Contractor shall be solely responsible for safety of all those involved with the work during the performance of all work. The Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions is identified and eliminated by the Contractor. The Contractor shall perform all work in accordance with the latest OSHA confined space entry regulations. The Contractor shall coordinate their work with local fire, police, and emergency rescue unit.

The Contractor shall be responsible for any damage to public or private property resulting from their televising and cleaning activities and shall repair or otherwise make whole such damage at no cost to City and owner of the property.

2. **Flow Diversion/Lateral Bypass Pumping.-** The Contractor shall provide for the transfer of main line flow around the section or sections of pipe that are to be cleaned and televised, as required to complete cleaning, televising, and inspection work. The diverting and lateral bypass pumping work shall be performed in accordance with Detailed Specification "Sewer Flow Control" and as directed by the Engineer.

If the Contractor chooses to only divert part of the flow during their sewer cleaning operations, the Contractor must indicate that in their submittal, including which plugs would be installed. Contractor to note that all plugs, level sensors, and lateral bypass pumping system shall be in operation for the sewer televising, manhole inspections, and the chamber inspections.

3. **Sewer Cleaning.-** Each sewer section shall be cleaned to a degree sufficient to allow video inspection and cured-in-place pipe (CIPP) lining to be completed in accordance with this specification and Detailed Specification "CIPP Sewer Lining." The Contractor shall take precautions to protect the sewer lines from damage. The existing sewer has not been cleaned or inspected in decades. The Contractor shall assume the sewer will require heavy cleaning with unlimited passes to achieve a clean sewer and that rodding and root cutting shall be required and are included in the contract pay item.

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The Contractor must adhere to the requirements of ASTM F1216 or ASTM F1606 for the following types of cleaning: hydraulic cleaning, high velocity hydro-cleaning, and mechanical cleaning.

Remove dirt, grease, rocks, sand, roots, and other solid or semisolid materials and obstructions from the sewer line and manholes. Cleaning shall be of the entire reach between manholes and/or chambers.

It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, dropped joints, debris from collapsed pipe, sediment deposits, mineral deposits, stalactites, and all major blockages that would prevent sewer rehabilitation work to be performed at no additional cost to the project.

The sewers shall be cleaned by using a high pressure water cleaning machine with minimum capability of 5,000 pounds per square inch (psi) at 80 gallons per minute (gpm). A high pressure hose with a jet nozzle shall be introduced into the sewer so that a spray shall scour and clean the sewer line without applying internal pressure and damaging the pipe. This will require an unlimited amount of passes of the jet nozzle, or other cleaning measures to remove all debris. The hose shall be self-propelled by a minimum water pressure of 1,000 psi. Cleaning pressures to 5,000 psi may be required to remove heavy tuberculation and adhered debris from the pipe interior. The jet nozzle hose, upon withdrawal, will scour the pipe (invert, walls, and crown), flushing all materials into the downstream manhole for removal. The Contractor shall be aware that a segment of this sewer (MH 71-70049 to 71-70048) has been previously lined, so mechanical devices or methods that may damage existing liner may not be used.

Due to the sensitive nature of the project work site, the Contractor shall only be allowed to occupy the manholes as shown on the Drawings for the performance of the cleaning operations. For major blockages where cleaning cannot be completed, the Contractor shall notify the Engineer for review and approval before proceeding.

Material removal shall be performed at the identified-for-access manholes for the cleaning operation. At no time during cleaning shall material be allowed to enter or flow in the sewer past the downstream access manhole. Passing material from manhole section to manhole section shall not be permitted. All debris and waste material shall be completely removed from the sanitary sewer system and shall be disposed of by the Contractor in accordance with Detailed Specification "Removal and Disposal of Sludge and Debris Material."

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Mechanical root cutting shall be performed with powered equipment. The Contractor shall furnish suitable power machinery which shall be used to remove tree roots and deposits remaining after jet cleaning that prevent passage of television inspection equipment or prevent the lining of the sewer.

The Contractor shall provide digital video on DVD, flash drive, or hard drive that verify that the sewer is clean and free of sediment and debris to the satisfaction of the Engineer. If any sewer is not satisfactorily cleaned, it shall be promptly cleaned and re-inspected by closed-circuit television camera and video provided to the Engineer for review and approval.

If the sewer has material and debris that prevents the proper installation of the CIPP, prohibits video inspection, or is not cleaned to the satisfaction of the Engineer, the sewer shall be re-cleaned and re-televised at the Contractor's sole expense.

The sewer shall not be lined until such time as the cleaning operations have been approved in writing by the Engineer. Field Inspection personnel shall not be allowed to authorize the Contractor to begin installation of the CIPP sewer liner.

Extensions of contract time will not be granted for delays associated with re-cleaning and re-televising the sewer except as outlined under Detailed Specification "Extension of Time, Additional Compensation."

All water necessary for the cleaning and lining operations shall be furnished in accordance with Detailed Specification "Water Source."

The cleaning and removal of the material out of the sewer system shall be paid for as part of the "Clean 36-inch Dia. Sanitary Sewer" contract pay item. All other work necessary for the final disposal of the material shall be paid for as part of the "Removal and Disposal of Sludge and Debris Materials" contract pay item.

4. Siphon Pipe Cleaning.- The two 24-inch siphon pipes, with portions buried under the wetland, shall be cleaned. The Contractor shall note that one of the siphons is completely filled with debris and is completely plugged from the upstream to the downstream chamber. The other siphon is operational. The Contractor shall assume the siphons require heavy cleaning with unlimited passes to achieve a clean pipe and that rodding and scrubbing off the grease and other material from the walls shall be required and are included in the item of work.

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The cleaning of the two siphon pipes shall include the removal of all debris and sediment in both siphon pipes. Dewatering of the siphons shall be necessary for the proper cleaning of the siphons and shall be included in the contract pay item for siphon cleaning. The walls of the siphons must also be rodded to remove all grease, mineral deposits, stalactites, heavy tuberculation, and any other material likely to be adhered to the interior surface of the cast iron pipe. The siphons shall be cleaned to a level that allows for the detailed inspection of the walls and joints during sewer televising.

The clean-out manholes (MH 71-69892 and MH 71-70062) at the bottom of the siphon may be used for cleaning operations, however, the siphons must be dewatered prior to entering manholes. The use of the clean-out manholes shall be as specified on the Drawings.

The cleaning of the siphon pipes shall include all pipe from the upstream chamber (MH 71-69893) to the downstream chamber (MH 71-69895) including the section of pipe in the clean-out manholes.

All requirements stated in section c.3, Sewer Cleaning, shall also be required for siphon cleaning.

The cleaning and removal of the material from the siphons shall be paid for as part of the "Clean 24-inch Dia. Siphon Pipe" contract pay item. All other work necessary for the final disposal of the material shall be paid for as part of the "Removal and Disposal of Sludge and Debris Materials" contract pay item.

5. Manhole and Chamber Cleaning.- All sanitary manholes and chambers from MH 71-69254 to MH 71-70047 and siphon clean-out manholes (MH 71-69892 and MH 71-70062) shall be cleaned to a degree sufficient to perform the Level 2 MACP manhole inspection and as acceptable to the Engineer. The manhole structures shall be cleaned below their invert elevations with a power vacuum, or other Engineer-approved method, to remove all sediment to allow for the inspection of the bottom of the structures.

The Contractor shall assume the manholes and chambers require heavy cleaning with multiple passes to achieve a clean manhole. Manhole and chamber cleaning shall be incidental to the sewer cleaning and no additional payment shall be provided.

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6. Special Chamber Cleaning and Inspection.- Chambers MH 71-69893 and MH 71-69895 are upstream and downstream of the siphon pipes and are experiencing hydrogen sulfide corrosion and spalling of the walls. The chambers have not been inspected or cleaned and significant amounts of sediment and debris have accumulated in the structures. The cleaning and inspection of these chambers shall be a multi-step process.

The Contractor shall perform an initial cleaning of chambers MH 71-69893 and MH 71-69895 to remove all sediment and debris from the bottom of the structure. The initial cleaning shall be such as required to allow for man entry and a preliminary inspection of the structure including a structural inspection of the walls and floor.

The Engineer and Contractor shall then perform a confined space entry into the chambers to conduct a preliminary inspection to determine the condition of the walls. The Contractor shall coordinate with the Engineer to include time in the schedule for the inspections. The Contractor shall be responsible for providing all necessary confined space and safety equipment for their staff as well as two for engineering staff from the City. The Contractor shall notify the Engineer of the date of the entries a minimum of 5 working days prior to entry. The Contractor is to provide the Engineer several possible dates for entry. Any delays in the schedule due to failure of the Contractor to coordinate inspection efforts shall be at the expense of the Contractor.

If the preliminary inspection of walls determines that any additional work in the manhole will compromise the integrity of the walls or structure, all cleaning of the chamber shall immediately stop. The Engineer will instruct the Contractor on how to proceed.

If the preliminary inspection determines cleaning of the walls may proceed, the chambers shall then be cleaned to a degree sufficient for subsequent structural rehabilitation. The chamber cleaning shall remove all sediment, sand, grease, debris and unsound or loose material, old coatings, and other deleterious materials from the floor, walls, and roof. Cleaning equipment may include high pressure water (3,500 psi or greater), abrasive blasting, grinding, or acid etching. Use of detergents and/or hot water may be required to remove fats, oils, and grease. The removal of the spalling on the walls shall be performed to a depth as directed by the Engineer during the inspection. The Contractor shall take care as not to damage the steel reinforcement in the walls.

CLEANING AND TELEVISIONING SEWER, MANHOLES, AND CHAMBERS

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The Contractor should identify any surface material that cannot be removed using conventional equipment or methods listed above and submit to the Engineer for review. Upon completion of cleaning of chambers MH 71-69893 and MH 71-69895, the Contractor shall notify Engineer to coordinate performing the final visual inspection.

Included in the special cleaning of the chambers shall be the removal and proper disposal of the parts of the gates/valves in the chambers. These systems were once used to divert the flow between the two siphon pipes but have not been operated in decades.

The Contractor is to note the chambers may also contain weirs and internal walls that need to be cleaned as well.

7. Sewer and Siphon Television Inspection.- The initial “pre-rehabilitation” television inspection of the sewers and siphon pipes shall be conducted within a week of the cleaning of each segment as long as the flow diversion and lateral bypass pumping system has remained in operation. Should the flow diversion have been temporarily suspended between the cleaning and the televising, or between the initial televising and the lining, then both the cleaning and televising shall be repeated at no additional cost to the project except as described in Detailed Specification “Extension of Time, Additional Compensation.”

The camera must be operative in 100% relative humidity conditions. The live image obtained by the camera shall be transmitted to a color monitor of not less than 19 inches. The camera and monitor shall have a minimum 500 line resolution. The monitor shall be located inside the mobile recording studio.

Lighting for the camera shall be adequate to allow a clear picture of the entire periphery of the sewer and shall be varied as required to be effective for all pipe diameters inspected. Remote control of lighting brilliance, camera focus, and camera movement shall be from a control panel inside the mobile recording studio. Cables and equipment used to propel the camera shall not obstruct the camera view or interfere with the documentation of the sewer conditions.

CLEANING AND TELEVISIONING SEWER, MANHOLES, AND CHAMBERS

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The camera shall be moved through the sewer line at a uniform rate, maximum 30 feet per minute. Whenever possible, the camera shall move in an upstream direction. The camera shall be stopped for no less than 10 seconds at the manhole entrances, each service lateral, exit manholes, and at all points where the sewer is damaged or deficient. The camera shall pan and tilt to provide full view of each service lateral, and at all points where the sewer is damaged or deficient.

If the camera fails to pass through a pipe section, the Contractor shall re-set the equipment and attempt to perform the inspection coming back from the next upstream, identified-for-access, manhole. If the inspection cannot be completed from the next manhole, the inspection shall be considered complete and the Engineer will provide written instructions to the Contractor describing how to proceed with the work in that reach of sewer.

The initial television inspection shall be paid for under contract pay items "PACP Televis 36-inch Dia. Sanitary Sewer" or "PACP Televis 24-inch Dia. Siphon Pipe." The post rehabilitation television inspection shall be performed once the liner has been installed and cured. No payment shall be provided for post rehabilitation television inspection.

8. Manhole Inspection.- All sanitary manholes and chambers from MH 71-69254 to MH 71-70047 and Clean-out Manholes MH 71-69892 and MH 71-70062 shall be Level 2 MACP inspected. The Level 2 MACP inspections shall gather detailed information to fully document all defects, determine condition of the manhole, and provide specific information needed to recommend corrective action. Level 2 MACP inspection shall use the established defect coding system found in the PACP to the extent possible.

9. Line Obstructions/Repairs.- If the pre-rehabilitation video inspection reveals areas that require excavation and removal of a section of pipe, and/or spot repair, the Contractor shall submit in writing a request for authorization to perform the excavation, removal, and spot repairs, along with sufficient proof that these repairs are indeed necessary. Such requests shall include method of spot repair, type and manufacturer of repair pipe, method of connection, etc., and shall be submitted prior to commencement of the rehabilitation process. If removal and replacement of pipe, spot repairs, or other measures are required to allow the sewer pipe to be properly rehabilitated, this will be paid for as Extra Work at a price as agreed upon between the Contractor and the Engineer.

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d. Documentation.- The Contractor shall use the City’s manhole numbering system on all project documentation. The City will provide the Contractor with utility maps or Drawings showing the manhole numbers.

The Contractor shall provide to the City inspection logs listing the location in relation to adjacent manholes of each infiltration point, service leads, unusual conditions, roots, sewer connections, collapsed sections, presence of scale and corrosion, cracked pipe, wide joints, and other discernible features. The logs shall indicate size and type of pipe material, length of line from manhole, and direction of sewage flow, if present. The logs shall also indicate the time and date of recording. Each log shall be named with the pipe inspections from starting manhole to terminus manhole for each stretch of sewer. All logs shall be in accordance with NASSCO PACP and MACP standards, Version 7.0.

The Contractor shall provide color photographs of sewer laterals and all problem areas.

A color DVD and suitable log with voice and/or computer generated description for both pre- and post-rehabilitation inspection shall be made by the Contractor and kept for later reference by the Engineer.

The Contractor shall supply the Engineer with two electronic copies of the entire and final televised program, including PACP database, MACP database, video pipe recordings, reports on two separate flash drives or portable hard drives. Each drive shall contain the entire package of information. The data shall be provided within 15 working days of completion of field work. The information for individual databases, sewer segments, and recordings shall not be split into several drives. The flash drives or portable hard drives and information within it shall become the property of the City.

e. Measurement and Payment.- The completed work as measured for these items of work will be paid for at the contract unit prices for the following contract pay item:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Special Clean & Inspect – Chamber 71-69893	Lump Sum
Special Clean & Inspect – Chamber 71-69895	Lump Sum
Clean 36-inch Dia. Sanitary Sewer	Lineal Foot
Clean 24-inch Dia. Siphon Pipe	Lineal Foot
PACP Televisе 36-inch Dia. Sanitary Sewer.....	Lineal Foot

CLEANING AND TELEVISIONING SEWER, MANHOLES, AND CHAMBERS

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PACP Televis 24-inch Dia. Siphon Pipe.....Lineal Foot
Level 2 MACP Inspect Manhole or Chamber Each

Payment shall be made on a lineal foot basis for the cleaning and televising of sanitary sewer. Measurements shall be from manhole to manhole, and shall take place with both the Engineer and the Contractor (or their agents) present. Measurements shall be recorded and logged on a daily basis.

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified herein.

The contract pay item "Special Clean & Inspect – Chamber" shall include all the work indicated herein and any other work necessary to complete the task of cleaning the chambers. The proper disposal of the sediment, sludge, debris, and other material in the two chambers will not be included in the items of work described herein, but shall be considered to be included in the item of work "Removal and Disposal of Sludge and Debris Materials" specified elsewhere. Removal and proper disposal of the parts of the gates/valves in the chambers shall be included in the "Special Clean & Inspect – Chamber" contract pay item.

REMOVAL AND DISPOSAL OR SLUDGE AND DEBRIS MATERIAL

**CITY OF ANN ARBOR
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REMOVAL AND DISPOSAL OF SLUDGE AND DEBRIS MATERIAL**

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a. General.- This work shall consist of removal and disposal of sludge and debris material as a result of the sanitary sewer, manhole, and chamber cleaning operations.

b. Sanitary Sewer Material.- The material removed from cleaning the 36-inch sanitary sewer, 24-inch siphon pipes, manholes, chambers, and special cleaning chambers MH 71-69893 and MH 71-69895 shall be removed from the system as described in Detailed Specification, "Cleaning and Televising Sewer, Manholes, and Chambers" and hauled offsite for legal disposal.

The removal of the material out of the sewer system shall be paid for as part of the sewer or chamber cleaning contract pay item. All other work necessary for the final disposal of the material shall be paid for as part of the "Removal and Disposal of Sludge and Debris Material" contract pay item.

c. Disposal.- The Contractor shall remove the wet sludge, sediment, debris, and other material from the sewer system and dewater the material at an offsite location, in vacuor trucks onsite, or by other means as required for legal disposal and as approved by the Engineer. No material shall be accumulated onsite unless approved by the Engineer. When removing waste, the material shall be decanted to remove as much of the free liquid as possible. If dewatering onsite, the Contractor may discharge the free liquid (supernatant) back into the sanitary sewer at a downstream manhole. The hauled off solids/sludge/material shall be transported in sealed transport trucks. Supernatant shall not be allowed to leak out of the transport trucks onto the roads.

The removal and proper disposal of the sediment, sludge, debris, and other material from the two chambers is part of this contract pay item. However, the removal and proper disposal of the parts of the gates/valves in the chambers shall be included in the "Special Clean & Inspect – Chamber" contract pay item.

The Contractor shall be responsible for all fees, including all testing fees, material transport, dewatering, drying, and disposal at an approved landfill facility. The Contractor shall provide certified manifests from the landfill, indicating in and out weights of all transport vehicles containing wastes absent of free liquids, to the Engineer.

REMOVAL AND DISPOSAL OR SLUDGE AND DEBRIS MATERIAL

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d. Solids Material Testing.- Solid waste material holding free liquids are prohibited from disposal at municipal solid waste landfills. The Contractor shall demonstrate the absence or presence of free liquids in accordance with Method 9095B (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. Material passing the Paint Filter Liquids Test shall be considered "dry."

The City of Ann Arbor (City) believes the sludge is not hazardous and can be disposed of in a Type II landfill. The landfill may require the Contractor to provide proof that the materials are non-hazardous prior to disposal. The Contractor shall be responsible for collecting a sample of the sludge and testing it prior to the start of the sewer/siphon/chamber cleaning.

The Contractor shall provide copies of the sampling results to the Engineer. If required by the landfill, the Contractor is responsible to re-test the material and verify there are no hazardous materials in the sludge and/or debris prior to shipping it to the landfill. No additional payment shall be made for testing or re-testing and verifying the material content.

e. Measurement and Payment.- The completed work shall include all labor, material, fees, tests, and equipment costs to perform all the work specified in the Detailed Specifications and as modified herein to properly dispose of the sediment, debris, sludge, and all other inert material removed from the sewer system.

The complete work as measured for these items of work will be paid for at the contract unit prices for the following contract pay items:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Removal and Disposal of Sludge and Debris Material	Tons

The item "Removal and Disposal of Sludge and Debris Material" shall be a paid for in tonnage of "dry" material absent of free liquids based on the landfill manifests and shall be payment in full for all materials, equipment, and labor necessary to complete this item, including drying the material to the point where it will pass the paint filter test as required by the disposal facility and transporting it to the landfill for disposal.

REMOVE AND REPLACE CHAMBER ROOF SLAB

CITY OF ANN ARBOR DETAILED SPECIFICATION FOR REMOVAL AND REPLACEMENT OF CHAMBER ROOF SLAB

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a. General.- This work shall consist of the removal of the existing roof slabs of sanitary chambers MH 71-70049 and MH 71-69895, and fabricating, furnishing, erecting, and installing replacement slabs for these chambers. Except as otherwise specified herein, all work shall be performed in accordance with Sections 204, 205, 406, and 706 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, as shown on the Drawings, and as directed by the Engineer.

b. Material.- Precast concrete materials, reinforcing steel, position dowels, non-shrink grout or epoxy adhesive, and gasket materials shall be in accordance with Sections 406.02 and 706 of the 2012 edition of the MDOT Standard Specifications for Construction. Backfill material shall be provided in accordance with Section 205 of the 2012 edition of the MDOT Standard Specifications for Construction. The Contractor shall take all necessary measures to protect materials from being damaged by freezing while performing the work. Any damage to the work or delays in the schedules resulting from materials freezing shall be at the Contractor's sole expense.

1. Access Hatches.- Hatch supplier shall be responsible for the structural design of access hatches; the assembled unit shall be designed for a uniform load of 300 pounds per square foot (psf). The basis of design manufacturer is Halliday; equals by Bilco, J.L. Industries, Karp, Milcor, or Nystrom will be allowed, provided products of one manufacturer are used throughout the project. The Engineer will be the sole judge of equality. The Contractor shall submit manufacturer's literature and cut sheets of access hatches, showing materials, individual components, profiles, finishes, details, and attachments to other work, for the Engineer's review.

Access hatches shall have mill finished extruded aluminum framing with minimum 1/4-inch thick diamond pattern aluminum tread plate face panels. Hatches shall be single leaf, with sizes as indicated on the Drawings. Hatches shall have an extruded channel shaped frame with an integral Type 316 stainless steel NPS 1-1/2-inch drainage coupling for conducting water to outside the structure. Coat aluminum which is to be in contact with concrete with a bituminous mastic. Provide a neoprene gasket around the perimeter of the face panels to minimize the release of odors. Include fall-through protection.

REMOVE AND REPLACE CHAMBER ROOF SLAB

CITY OF ANN ARBOR DETAILED SPECIFICATION FOR REMOVAL AND REPLACEMENT OF CHAMBER ROOF SLAB

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Hinges shall be butt style. The latch shall be slam style. The Contractor shall provide a heavy-duty pad lock for each hatch so that illegal entry into the chambers is prevented; one key shall be able to open each lock. Provide three keys to the City of Ann Arbor for their use at the conclusion of the project. All hardware material shall be stainless steel, including latch and lifting mechanism assemblies, hold-open arms, and all brackets, hinges, pins, and fasteners.

2. Submittals.- The Contractor shall provide fabrication/shop drawings of the proposed roof slabs from the precast facility for Engineer review and approval in accordance with Section 104.02 of the 2012 MDOT Standard Specifications for Construction. Shop drawings shall be detailed and sealed by a professional engineer licensed in the State of Michigan. The shop drawings for the concrete roof slabs shall be prepared such that they include all needed information and details regarding the proposed access hatches.

For each submittal and re-submittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the re-submitted plans, calculations, and descriptions. The Engineer's acceptance of the plan is required before beginning the work. Re-submittals shall be reviewed and returned to the General Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in their schedule.

c. Construction.- Construction shall be performed in accordance with Sections 204 and 706 of the 2012 edition of the MDOT Standard Specifications for Construction, this Detailed Specification, the Drawings, and as directed by the Engineer.

This work shall include the removal of the existing chamber roof slabs at MH 71-70049 and MH 71-69895, fabricating, furnishing, erecting, and installing the new chamber roof slabs, including hatch(es), as detailed in the Drawings and furnishing, placing, and compacting MDOT Class II sand backfill or flowable fill at excavation around structure. All earth excavation and embankment around chamber shall be included in the bid price for this item of work. If the Contractor elects to provide flowable fill as backfill material, the furnishing and placing of flowable fill as backfill for this item will not be paid separately, but shall be included in the bid price for this item of work.

REMOVE AND REPLACE CHAMBER ROOF SLAB

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

Removal and replacement of the chamber roof slab at MH 71-69895 shall include removal of all downed trees lying on top of the structure. Approximate tree diameters and lengths are indicated on the Drawings for reference and shall be field verified by the Contractor. Removal of downed trees, and furnishing and installing hatch(es), castings and covers will not be paid separately, but shall be included in the bid price for this item of work.

1. Concrete Roof Slab.- The Contractor shall fabricate the precast the slab on or off site and place the slab in accordance with the details indicated on the Drawings.

2. Access Hatches.- Install access hatches in conformance with the manufacturer's recommendations. Set frames accurately in position and attach securely to supports with the plane of face panels aligned with adjacent surfaces. Route PVC piping from the drain coupling on the frame to the interior of the structure as shown on the Drawings and as directed by the Engineer. Adjust hatches and hardware after installation for proper operation.

d. Measurement and Payment.- The completed work as measured for this item of work will be paid for at the contract unit price for the following contract pay item:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Removal and Replacement of Chamber Roof Slab – MH 71-70049	Lump Sum
Removal and Replacement of Chamber Roof Slab – MH 71-69895	Lump Sum

The contract unit price shall be payment in full for all labor, material, and equipment required for performing the work necessary to remove the existing chamber roof slabs, and furnish and install new precast concrete roof slab and shall include, but is not limited to; removal and proper disposal offsite of the existing roof slabs; all excavation, sheeting, shoring and bracing, and dewatering; protection of the remaining portions of the existing chamber from damage; fabricating, transporting, furnishing, erecting, and installing roof slab including the access hatch and appurtenances; furnishing, placing, and compacting backfill materials; and all other items necessary to complete the work as specified herein.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
CIPP SEWER LINING

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a. Description.- This work shall consist of rehabilitating pipelines by the insertion of a resin impregnated flexible lining and cured-in-place to form a pipe. The cured-in-place pipe (CIPP) shall be saturated with a thermosetting resin and inserted into the existing pipeline. Curing shall be accomplished by circulating hot water only to harden the resin into a hard impermeable pipe. When cured, the hardened CIPP shall be a tight fitting watertight pipe within a pipe. The CIPP shall be continuous from manhole to manhole with no circumferential joints or seams. Except as otherwise specified herein, all work shall be performed in accordance with the City of Ann Arbor (City) Public Services Area Standard Specifications, and as directed by the Engineer.

For a CIPP system to be considered acceptable, the CIPP system must have at least two million lineal feet of successful, documented installations, a minimum of 250,000 lineal feet of which shall have been in Midwestern United States or Canada.

When requested by the Engineer, the Contractor shall submit test results from previous field installations of the same resin system and tube materials as proposed for this installation. The test results must verify that the CIPP physical properties specified in this Detailed Specification have been achieved in the field.

The lining operation shall not begin until the sewer has been cleaned and video inspected in accordance with the Detailed Specification "Cleaning and Televising Sewer, Manholes, and Chambers" and authorization to begin by the Engineer has been granted.

b. Design Considerations.- The required structural CIPP wall thickness shall be based, at a minimum, on the physical properties of the cured composite and per the design of the Professional Engineer. The finished liner shall be designed per ASTM F1216 Appendix X1 for the following condition:

Condition.....	Fully deteriorated gravity pipe
Safety Factor	2
Ovality.....	As measured by Contractor during sewer inspection, assume 2% for bidding purposes
Soil Density	130 pounds per cubic foot (lbs/cft)
Soil Modulus	700 pounds per square inch (psi) for pipe inverts up to and including 15 feet deep, 1,000 psi for pipe inverts greater than 15 feet deep
Groundwater Depth:.....	As field verified
Surcharge Loading.....	HS-20 (Highway) when any part of the sewer is under any major street, county road, or state highway; E-80 (Railroad) when under any railroad.

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The acceptable resin system values to be incorporated into the formula for liner thickness shall not be greater than the following:

Table 1

	Polyester	Enhanced Polyester	Vinyl Ester	Epoxy
Short Term Flexural Modulus (psi)	300,000	400,000	250,000	300,000
Long Term Flexural Modulus (psi)	150,000	200,000	125,000	150,000
Creep Retention Factor	50%	50%	50%	50%
Flexural Strength (psi)	4,500	4,500	4,500	5,000

Where the requirements of this specification conflict with ASTM F 1216 or ASTM D5813 this Detailed Specification shall govern.

The Contractor shall determine the liner thickness and resin quantity for this project per ASTM F1216, Appendix X1. Liner thickness, resin, and resin quantity shall be furnished to the Engineer for review and approval prior to beginning work. The design calculations for wall thickness shall be completed by a Professional Engineer proficient in the design of pipeline systems, licensed in the State of Michigan, with design calculations signed and sealed. The CIPP design shall assume no bonding to the original pipe wall.

The Contractor shall submit, prior to installation of the lining materials, certification of compliance with these specifications. Certified material test results shall be included that confirm that all materials conform to these specifications. Materials not complying with these requirements will be rejected.

For each submittal and re-submittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the re-submitted plans, calculations, and descriptions. The Engineer's acceptance of the submittal is required before beginning the work. Re-submittals shall be reviewed and returned to the General Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in their schedule.

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c. Material.- All materials shipped to the project site shall be accompanied by test reports certifying that the material conforms to the ASTM standards listed herein. Materials shall be shipped, stored, and handled in a manner consistent with written recommendations of the CIPP system manufacturer to avoid damage. Onsite storage locations shall be as indicated on the Drawings and approved by the Engineer.

1. **Preliner Tube.-** The preliner shall be a polyethylene material compatible with the lining system, and shall be utilized where necessary to accommodate infiltration, damaged, or missing pipe.

2. **Felt Liner Tube.-** The tube shall consist of one or more layers of absorbent, flexible, non-woven felt material. The tube shall be capable of carrying the specified resin, constructed to be able to withstand installation pressures and curing temperatures, have sufficient strength to bridge missing pipe and stretch to fit irregular pipe sections at all pipe locations, and be compatible with the resin used.

The outer tube coating shall consist of an impermeable, flexible membrane that contains the resin and allows for visual inspection and verification of proper resin impregnation (“wet-out”) procedure. The coating shall hold the resin inside the tube without leakage, accommodate installation, and stretch to the size and shape of the existing sewer, and shall not delaminate before, during, or after curing.

The tube shall have a uniform thickness that when compressed at installation pressures will meet, or exceed, the design thickness. The thickness of the tube shall be calculated based upon the resin system values given in this Detailed Specification.

The CIPP wall thickness shall be calculated from the equation in ASTM F1216, Appendix X1, based upon the parameters given in this Detailed Specification. The minimum CIPP wall thickness shall be not less than the value calculated by that equation. Any layers of tube that are not saturated with resin and capable of being cured shall not be deemed to have been included in the calculated CIPP wall thickness.

The tube shall be fabricated to a size and length that when installed will fit sufficiently tight within the existing pipe so as to not leak at manholes, at service connections, or through the wall of the installed pipe. The tube shall be properly sized to the diameter of the existing pipe and the length to be rehabilitated and be able to stretch to fit irregular pipe sections and negotiate bends. The Contractor

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shall determine the minimum tube length necessary to effectively span the designated run between manholes. The Contractor shall verify the lengths in the field prior to impregnation of the tube with resin, to ensure that the tube will have sufficient length to extend the entire length of the run. The Contractor shall also measure the inside diameter of the existing pipelines in the field prior to ordering liner so the liner can be installed in a tight-fitted condition. Allowance for circumferential stretching of the tube during insertion shall be made as per manufacturer's recommendations. Overlapped layers of felt in the longitudinal seam that cause lumps in the final product shall not be utilized

The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

The wall color of the interior pipe surface of the CIPP after installation shall be a light reflective color so that a clear detail examination with closed circuit television inspection equipment may be made. The hue shall be dark enough to distinguish a contrast between the fully resin saturated felt fabric and dry or resin lean areas.

Seams in the tube shall be stronger than the unseamed felt and shall meet the requirements of ASTM D5813. Where the length of the tube to be installed requires joining along the circumference of the tube, the sewn joint shall not be perpendicular to the long axis but spirally formed and sewn.

The outside of the tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall include the manufacturers name or identifying symbol. The tubes must be manufactured in the USA.

The length of the tube shall be that deemed necessary by the Contractor to effectively carry out the insertion and seal the pipe at the inlet and outlet points, plus that amount required to run-in and run-out for the installation process. The Contractor shall verify the lengths in the field before cutting the tube to length. Lengths of sewer shall be lined over one or more access points as shown on the Drawings.

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3. **Resin.-** Resin shall be a polyester, enhanced polyester, vinyl ester, or epoxy system including all required catalysts, initiators, or hardeners that when cured within the tube creates a composite that satisfies the requirements of ASTM F1216 and ASTM F1743, the physical properties herein, and those which are to be utilized in the design of the CIPP for this project. Resin selected shall be resistant to the chemical composition of the sewage and comply with the structural requirements of this specification.

The resin shall be thermosetting resin that is compatible with the lining process and shall meet the requirements of ASTM F1216 except as otherwise specified in this Detailed Specification. The resin shall be able to cure in water with an initiation temperature for cure as required by the liner manufacturer, but not greater than maximum temperatures required under ASTM F1216. The cured resin/felt system shall be suitable for the expected conditions within the existing sanitary sewer.

The Contractor is responsible for choosing a resin system that is capable of meeting the physical and cured-in-place properties and performance requirements as detailed in this specification.

4. **Field Cured Line.-** The completed liner as installed and fully cured-in-place shall meet the minimum physical properties for short term flexural modulus and flexural strength as shown in Table 1.

5. **Remote Temperature Sensing Devices.-** Fiber optic probes shall be installed to monitor the average temperature along the entire length of the tube as it cures. Devices shall be provided by VeriCure or an Engineer-approved equal.

d. Construction.- The Contractor shall carry out their operations in strict accordance with all Occupational Safety and Health Administration (OSHA), Michigan Occupational Safety and Health Administration (MIOSHA), and manufacturer's safety requirements. The Contractor shall be solely responsible for safety during the performance of all work. The Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions is identified and eliminated by the Contractor and/or the City. The Contractor shall coordinate their work with local fire, police, and emergency rescue unit.

The Contractor shall be responsible for any damage to public or private property resulting from their sewer lining or televising activities and shall repair or otherwise make whole such damage at no cost to the City.

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1. Cleaning of Pipelines.- Prior to rehabilitation of any sewer, it shall be the responsibility of the Contractor to remove all internal deposits from the pipeline. This shall include dirt, debris, mud, bricks, grease or oils, mineral deposits, root masses, pieces of broken pipe, etc. Cleaning of sewer shall be in accordance with the City of Ann Arbor Public Services Area Standard Specifications, Detailed Specification "Cleaning and Televising Sewer, Manholes, and Chambers," and as directed by the Engineer.

2. Pre-Rehabilitation Inspection of Pipelines.- Inspection of pipelines shall be performed after the pipe has been cleaned, by experienced personnel trained in locating breaks, obstacles, and service connections by closed circuit television.

The interior of the pipeline shall be carefully inspected to determine the location and extent of any structural failures. The location of any conditions which may prevent proper installation of lining materials into the pipelines shall be noted so these conditions can be corrected as specified in this Detailed Specification and Detailed Specification "Cleaning and Televising Sewer, Manholes, and Chambers".

3. Diverting/Bypassing Flow.- The Contractor shall provide for the transfer of main line and/or lateral flow around the section or sections of pipe that are to be cleaned, televised, and rehabilitated. The work shall consist of diverting, pumping, and bypassing flow in the existing sewers in accordance with Detailed Specification "Sewer Flow Control" and as directed by the Engineer.

4. Line Obstructions.- It shall be the responsibility of the Contractor to clear the line of obstructions such as solids, dropped joints, root masses, protruding branch connections, or broken pipe that will prevent proper insertion of the liner in accordance with Detailed Specification "Cleaning and Televising Sewer, Manholes, and Chambers" and as directed by the Engineer.

5. Installation of Resin Impregnated Tube.- Due to the sensitive nature of the project work site, the Contractor shall only be allowed to use MH 71-70049 as shown on the Drawings for the installation point of the liner into the existing sewer to be lined.

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The Contractor shall designate a location where the uncured resin in the original containers and the unimpregnated liner will be resin impregnated prior to installation. The Contractor shall allow the Engineer to inspect the materials and procedure. A resin and catalyst system compatible with the requirements of this Detailed Specification shall be used. The quantities of the liquid thermosetting materials shall be provided in accordance with manufacturer's standards to provide the cured liner properties specified. Sufficient resin shall be used to fill the volume of air voids in the liner with additional allowance for polymerization, shrinkage, and loss of resin through cracks and irregularities in host pipe wall. The Contractor shall ensure the proper amount of resin is uniformly distributed throughout the entire length of the tube.

The wetting out, installation, and curing of the resin impregnated tube shall be in accordance with ASTM F1216 and per manufacturer's specifications. The tube shall be inserted through existing chamber MH 71-70049 by means of an inversion process, the application of a hydrostatic head sufficient to fully extend the liner to the next designated access point, or other means as approved by the Engineer.

The process will be adjusted as necessary to ensure a complete lining without over-stressing or tearing the lining, with sufficient pressure to hold the liner snug to the pipe wall, and to produce dimples at side connections and flared ends at the entrance and exit access points. The use of a lubricant is recommended and if used, such lubricant shall be compatible with the rehabilitation process.

The manufacturer's standards shall be closely followed during the elevated curing temperature so as not to over-stress the felt fiber and cause damage or failure of the liner prior to cure.

6. Curing.- Hot water is required for full length liners. After installation of the resin impregnated liner is completed, the Contractor shall supply a suitable heat source and water recirculation equipment as necessary to cure the liner. The equipment shall be capable of delivering hot water to the far end of the liner through a hose, which has been perforated per manufacturer's recommendations, to uniformly raise the water temperature in the entire pipe above the temperature required to affect a cure of the resin. This temperature shall be determined by the resin/catalyst system employed.

All water necessary for CIPP lining operations shall be furnished in accordance with Detailed Specification "Water Source."

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For quality control during the CIPP lining operation, the Contractor shall utilize remote temperature sensing devices placed between the host pipe and the liner to continuously monitor the liner cure incrementally every 18 inches or less to verify that an exothermic reaction has occurred and that a full cure has taken place along the full length of the CIPP liner. **Measuring temperatures at the liner endpoints only will not be permitted.** The cure information must be taken from the bottom third of the pipe liner. Cure parameter information shall be provided by the resin manufacturer.

Liner and/or host pipe interface temperature shall be monitored and logged during curing of the liner. The monitoring system must have the ability to be remotely viewed live by the Engineer. Data collected shall be provided to the Engineer in Excel spreadsheet and graphical viewer formats at the same time as the post-lining inspection videos are provided.

Initial cure shall be deemed to be completed when the remote sensing devices reflect that the cure temperature, as recommended by the resin/catalyst system manufacturer, have been achieved. The cure period shall be of a duration recommended by the resin manufacturer, as modified for site-specific conditions, during which time the recirculation of the water and cycling of the heat exchanger to maintain the temperature in the liner continues.

7. Cool-Down.- The Contractor shall cool the CIPP in accordance with the CIPP manufacturer's recommendations, to a temperature below 100°F before relieving the static head in the liner. Temperatures and curing data shall be monitored and recorded by the Contractor throughout the installation process to ensure that each phase of the process is achieved in accordance with the CIPP manufacturer's recommendations. Cool-down may be accomplished by the introduction of cool water into the liner to replace water being drained from the downstream end. Care shall be taken in the release of the static head such that a vacuum will not be developed that could damage the newly installed liner. The cooled water shall be released to the existing sanitary sewer at a rate that is approved by the Engineer and the City of Ann Arbor's Waste Water Treatment Plant (WWTP) superintendent.

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8. Finish.- The cured liner shall be continuous over the entire length of an insertion run and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes, and delamination. The lining shall be impervious and free of any leakage.

Any defects which will affect the integrity of the liner, or any deficiencies in required strengths or thicknesses, shall be repaired or removed and replaced at the Contractor's expense, in a manner acceptable to the Engineer.

The section of 36-inch diameter ductile iron pipe from MH 71-70049 to MH 71-70048 has already been lined in a previous contract. Any liner installed between these structures to facilitate continuous lining of downstream or upstream portion of sewer shall be cut and removed by the Contractor without damaging the existing liner previously installed.

9. Sealing Liner at the Ends.- A seal, consisting of a hydrophilic sealing gasket compatible with the installed CIPP, shall be installed at each manhole/pipe wall interface. The seal shall be a seamless molded tubular design that swells in the presence of water. The seal shall be secured in place by a retaining ring.

10. Post-Rehabilitation Television Inspection.- The completed sewer shall be television inspected and color videotaped, by the Contractor, in accordance with Detailed Specification "Cleaning and Televising Sewer, Manholes, and Chambers." No payment shall be provided for post rehabilitation television inspection.

11. Acceptance Tests.- The Engineer shall perform Acceptance Testing in accordance with ASTM F1216 (including appendices) and ASTM D5813.

The Contractor shall prepare plate test samples to be cured with the CIPP operation. The Contractor shall capture and prepare 10 sample specimens of the liner for the Acceptance Testing to be performed by the Engineer for each section of sewer lined in accordance with Section 8 of ASTM F1216 for testing flexural strength and delamination. The Contractor shall prepare the samples for shipment to the laboratory, including cutting samples to proper length and width as described in the applicable ASTM test procedures. Samples shall be labeled for date, diameter, section of sewer, and delivered to the Engineer for testing. The cost of the sample postage, shipping, and testing will be paid for by the City. When tested, each sample shall meet the physical properties for flexural modulus and flexural strength used in the design calculations.

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Air testing on isolated sections of sewer (minimum of 2 to 3 feet in length) shall be required if post-rehabilitation inspection indicates leaks in the liner. Air testing shall be performed on longer sections or multiple sections of sewer as required to identify the location(s) and full extent of defects. Such testing shall be performed by the Contractor at no additional expense to the project.

CIPP wall thickness shall be verified in accordance with Section 8.6 of ASTM F1216 and using test methods consistent with Section 8.1.2 of ASTM D5813.

The Engineer will have all flexural and delamination testing performed by an independent, ASTM-certified testing laboratory. The testing laboratory shall submit all test results directly back to the Engineer within 14 calendar days. The Engineer will provide a written copy of the test results to the Contractor within 3 business days of receiving them from the laboratory. The Contractor may elect to restore flow in the mainline sanitary sewer during this period of time. However, if the test results indicate that the liner fails to meet the project requirements and that remedial work is required to be performed, the Contractor shall perform any required cleaning in order to allow the remedial work to be performed at no additional cost to the project.

Should the test results indicate that the liner fails to meet the required physical properties as specified herein, the work shall be rejected. The Contractor shall have up to 10 calendar days to propose a repair/replacement plan consistent with the requirements of Section d.15 of this Detailed Specification for the Engineer's review and acceptance.

While repair/replacement work is performed, the Contractor shall continue to be responsible for maintaining flows in the mainline and lateral sanitary sewers in accordance with the requirements of the Detailed Specification "Sewer Flow Control." The unit price for the item of work "Sewer Flow Control" shall not be adjusted for any increase in contract time or required work due to the repair or replacement of defective materials or faulty workmanship.

The Contractor shall remove and replace or repair any defects in the installed liner to the satisfaction of the Engineer at no additional cost to the project. Contract time will continue during the period of time from the receipt of failing test results to the completion of the repairs.

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12. Clean-Up.- Upon completion of the installation work and after required testing indicates the linings are acceptable, the Contractor shall restore the project area affected by their operation in accordance with Detailed Specification "Project Clean-Up and Restoration, Special."

13. Traffic Control.- During the entire rehabilitation process, the Contractor shall provide all necessary barricades, signs, traffic regulators (flaggers), minor traffic devices, etc., to maintain both vehicular and pedestrian traffic in accordance with the Michigan Manual of Uniform Traffic Control Devices, as shown on the Drawings, and in accordance with Detailed Specification "Maintenance of Traffic."

14. Warranty.- The materials used for the project shall be certified by the manufacturer for the specified purpose. The Contractor shall warrant the liner material and installation for a period of 2 years. During the Contractor warranty period, any defect which may materially affect the integrity, strength, function, and/or operation of the pipe, shall be repaired at the Contractor's expense in accordance with procedures described in this Detailed Specification, Section d.15, "Liner Repair/Replacement," and as recommended by the manufacturer.

The Contractor shall conduct warranty CCTV inspection of sewers which were lined. This work shall be completed at the Contractor's expense, no sooner than 2 months prior to the expiration of the original warranty period. The televising shall be performed in the presence of the Engineer. Television inspection that is not performed within the presence of the Engineer will not be accepted and shall be performed again at the Contractor's sole expense. Any areas that do not meet the requirements of this Detailed Specification will be repaired or re-lined at no additional cost to the City.

15. Liner Repair/Replacement.- The Contractor shall submit their Liner Repair/Replacement Plan and all design calculations to the Engineer for review and acceptance. The plan shall include:

A. The Contractor shall outline specific repair or replacement procedures for potential defects that may occur in the installed liner, in accordance with recommendations by the liner system manufacturer.

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B. The manufacturer shall provide a detailed step by step repair procedure, resulting in a finished product meeting the estimated life cycle of the component and requirements of these Detailed Specifications. For the purposes of this project, the life-cycle of this rehabilitation shall be considered to be 50 years.

C. Should a potential issue be un-repairable, in the opinion of the Engineer, the Contractor, together with the manufacturer, shall define the best recommended procedure for the total removal and replacement of the system.

D. The Contractor shall receive no additional compensation for the repair or replacement of systems deemed non-conforming to the requirements of these Contract Documents and unacceptable by the City.

e. Measurement and Payment.- The completed work as measured for this item of work will be paid for at the contract unit prices for the following contract pay item:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
CIPP Line 36-inch Dia. Sanitary Sewer.....	Lineal Foot
Preline 36-inch Dia. Sanitary Sewer.....	Lineal Foot

Rehabilitation of sanitary sewer will be paid for at the contract unit price per lineal foot. The contract unit price paid shall be payment in full for all labor, material, and equipment required for rehabilitation of existing sanitary sewers by insertion of a CIPP liner and shall include, but is not limited to; furnishing, transporting, preparing, and installing the structural pipe liner and CIPP end seals; furnishing and installing remote temperature sensing devices used during the liner curing process; reconnecting existing sewers or leads; performing any needed liner repairs; gaining access to work site; removal and replacement of site improvements; post-lining sewer televising; all required warranty work; and all other work and items necessary to complete the work as detailed within this Detailed Specification.

PROJECT CLEAN-UP AND RESTORATION, SPECIAL

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a. Description.- This work consists of performing on-going clean-up, removing, and disposing of debris; including soil erosion control fences, protective fences, fallen timber, logs, brush, rocks, boulders, and any other rubbish generated from the Contractor's operations within the project limits or areas impacted by their operations. The Contractor shall perform final restoration and establish the planting areas as described in this Detailed Specification, as indicated on the Drawings, and as directed by the Engineer.

The related work of salvaging the existing topsoil, stockpiling the existing topsoil, preparing the earth bed, re-spreading the topsoil, furnishing the seed mixtures, sowing the seed, furnishing, placing, and anchoring the mulch blanket shall conform to the requirements of this Detailed Specification and Section 816, Turf Establishment, of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

b. Materials.- The materials shall meet the requirements specified in the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein:

1. Woodland Area Seed.- The disturbed areas along Nichols Drive and adjacent to the Arboretum's woodland areas, including the area surrounding MH 71-70049 and adjacent to aggregate access path within wooded area, shall be seeded with the "Mesic Woodland Mix" prepared by:

Native Connections
17080 Hoshel Road
Three Rivers, MI 49093
(269) 580-4765

2. Amphitheater Area Seed (Fescue Lawn).- The disturbed area in the amphitheater area shall be seeded with a low maintenance, drought resistant mixture. Use a seeding mixture that is composed of four or more species of perennial grass. Use only species and their cultivars or varieties which are guaranteed hardy for Michigan. Do not select grass species considered noxious or objectionable, such as Quack Grass, Smooth Brome, Orchard Grass, Reed Canary Grass, and others.

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A suggested formulation and suggested mix are indicated below:

Typical Formulation:

Hard fescue (<i>Festuca brevipila</i>)	25%
Sheep fescue (<i>Festuca ovina</i>)	25%
Chewings fescue (<i>Festuca rubra</i> var. <i>fallax</i>)	25%
Creeping red fescue (<i>Festuca rubra</i> var. <i>rubra</i>)	25%

Or, Eco-Turf Low Maintenance Fescue Mix, 5 pound (Lb)/1,000 square foot (SF) seeding rate, prepared by:

Michigan Wildflower Farms
11770 Cutler Road
Portland, MI 48875
(517) 647-6010

3. Mulch.- Mulch seeded areas with the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation. Mulch blankets shall be high velocity straw mulch blankets as specified in the 2012 edition of the MDOT Standard Specifications for Construction, Section 917.15.B.1.b.

c. Construction.- Provide project cleanup as an ongoing operation. Perform project cleanup within the right-of-way, Nichols Arboretum, and any other areas impacted by the project work operations.

Fill all holes and ruts resulting from the work operations with Engineer-approved material. Compact and level all backfill materials and restore ruts and holes to the surrounding contour as directed by the Engineer. Restore areas of Nichols Drive damaged by temporary pipe trenches to their original depth in accordance with the aggregate drive detail on the Drawings and as approved by the Engineer at no additional cost to the project.

Any paved portions of Nichols Drive or areas within Lot M29 damaged by the Contractor's operations shall be repaired by the Contractor at no additional cost to the project. Contractor shall submit proposed pavement repair details for review and approval by the Engineer.

PROJECT CLEAN-UP AND RESTORATION, SPECIAL

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Grade, re-spread existing topsoil, removing rocks over 2 inches in diameter, place additional topsoil (as needed), place permanent seeding and furnish, place, and anchor erosion control straw mulch blanket in all areas disturbed by the Contractor's operations. The Contractor shall be responsible for performing the permanent restoration of the roadways, stairs, and other areas as part of the work of this Detailed Specification.

Topsoil placement shall occur at the locations called for on the Drawings or as directed by the Engineer. Minimum topsoil thickness in restoration areas shall be 4 inches. The Contractor may be required to truck in additional topsoil.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over 3 percent of the area nor greater than 6- by 6-inch in size.

Clean existing culverts, ditches, depressions, or other areas that contain sediment or debris from the work operations.

Neatly fill any ruts or depressions resulting from removal of soil erosion control materials with existing materials after their removal. Maintenance of silt fencing and other soil erosion control materials until such time as they are no longer needed, then removal and proper disposal of them from the site, shall be included in the bid price for the related soil erosion control device.

The project site shall be left in a condition that is clean and free of all project-generated debris, in accordance with Detailed Specification "Final Acceptance" and to the satisfaction of the Engineer.

d. Maintenance and Acceptance.- In the amphitheater fescue lawn area, it is the responsibility of the Contractor to establish a dense, vigorous, weed free lawn of permanent grasses, free from mounds and depressions, prior to final acceptance and payment of this project. Any portion of this seeded area that fails to show a uniform germination, shall be re-seeded. Such re-seeding shall be at the Contractor's expense and shall continue until a dense, vigorous, and weed free lawn is established.

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The Contractor shall maintain the amphitheater lawn area until it has been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place, and shall continue until final acceptance with the following requirements:

1. Lawn shall be protected and maintained by watering, mowing, and re-seeding as necessary, until the period of time when the final acceptance and payment is made. The maintenance includes, but is not limited to, watering, fertilizing, mowing, deposition of additional topsoil, re-seeding, and any other work as required to correct all settlement, erosion, germination, and establishment issues until the date of final acceptance of the lawn area by the Engineer.

2. Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over 3 percent of the area, nor greater than 6 inches by 6 inches in size.

When the above requirements have been fulfilled, the Engineer will accept the lawn.

e. Measurement and Payment.- The completed work as measured shall be paid at the contract unit price for the following contract pay items:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Project Clean-Up and Restoration, Special	Lump Sum
Topsoil Surface, Furn, 4 inch	Square Yard
Seeding, Fescue Lawn Mixture	Lb
Seeding, Mesic Woodland Mixture.....	Lb

"Topsoil Surface, Furn, 4 inch" will be measured by area in square yards, and "Seeding, Fescue Lawn Mixture" and "Seeding, Mesic Woodland Mixture" will be measured in Lb based on seeding rate as indicated herein. Both contract pay items will be paid for at the contract unit prices which shall be payment in full for all labor, materials, and equipment needed to accomplish this work as detailed herein.

The unit price "Topsoil Surface, Furn, 4 inch" shall include the grading of the area to receive the topsoil, preparing the earth bed, and stockpiling, spreading, and raking the topsoil to provide a uniform surface free of large clods, lumps, rocks, brush, roots, or other deleterious materials, as determined by the Engineer, in order to ready the area(s) to receive the specified seed mixtures.

PROJECT CLEAN-UP AND RESTORATION, SPECIAL

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After initial placement of the topsoil and seed mixture(s), 50 percent of the total quantity placed for each item will be certified for payment. The remaining 50 percent of the total quantities will be held by the Engineer until such time as all lawn areas have been established and accepted by the Engineer.

The lump sum price for "Project Clean-Up and Restoration, Special" shall include all remaining project clean-up and restoration work, including all labor, material, and equipment costs required to complete the work as specified herein.

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a. General.- The Contractor shall conform to the requirements of Sections 104.07 and 109.07 of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction, "Contractor Obligations" and "Final Inspection, Acceptance, and Final Payment," respectively.

b. Partial Acceptance.- Upon completion of a portion of the work, the Contractor may request, in writing, partial acceptance of that portion of the work. Within 7 days of the Contractor's written request, the Engineer will conduct an inspection to determine if the Contractor has satisfactorily completed that portion of the work in accordance with the contract.

Within 7 days of the inspection, the Engineer will provide written notice of either partial acceptance for that portion of the work, or an explanation for rejecting the Contractor's request for partial acceptance. If the Engineer grants the partial acceptance, the Engineer will designate in writing what portion of the work is partially accepted and the effective date of the partial acceptance.

Should the Engineer consider that the portion of the work is not complete, the Engineer shall notify the Contractor in writing stating the reasons. The Contractor shall complete the work and send a second written notice to Engineer certifying the project, or designated portion of the project, is partially complete. The Engineer and City of Ann Arbor (City) will re-inspect the work.

Partial acceptance will relieve the Contractor of maintenance responsibility and third-party damage liability for the designated portion of the work. By relieving the Contractor of maintenance and third-party damage claims, the City does not relieve the Contractor of responsibility for defective work or damages caused by the Contractor's operations. The Contractor shall not construe partial acceptance to be final inspection, final acceptance of any part of the work, or waiver of any legal rights specified under Section 107 of the 2012 edition of the MDOT Standard Specifications for Construction.

c. Delayed Acceptance.- Upon completion of contract work items designated for delayed acceptance, the Contractor must notify the Engineer, in writing, of the completion of the designated work. Within 7 days of the Contractor's written request, the Engineer will conduct an inspection to determine if the Contractor has satisfactorily completed the designated portion of the work in accordance with the contract. Within 7 days of the inspection, the Engineer will notify the Contractor, in writing, of the date the delayed acceptance period begins.

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Delayed acceptance will relieve the Contractor of maintenance responsibility and third-party damage liability for the designated portion of the work. By relieving the Contractor of maintenance and third-party damage claims, the City does not relieve the Contractor of responsibility for defective work or damages caused by the Contractor's operations. The Contractor shall not construe delayed acceptance to be final inspection, final acceptance of any part of the work, or waiver of any legal rights specified under Section 107 of the 2012 edition of the MDOT Standard Specifications for Construction.

d. Final Clean-Up.- Unless otherwise required in the Contract Documents, the cost of final clean-up is included in the contact unit price for the related items of work (contract pay items).

Before final acceptance, the Contractor must complete all of the following:

1. Remove the following from the project limits, unless otherwise required in the Contract Documents or directed by the Engineer:

- A. Unused and/or unneeded materials;
- B. Temporary aggregates;
- C. Temporary soil erosion and sedimentation control devices;
- D. Rubbish;
- E. Protective fencing;
- F. Temporary pipe and supports;
- G. Equipment;
- H. Temporary traffic control devices; and
- I. All other temporary construction items, equipment, and debris not specifically listed above.

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2. Restore areas occupied during the project in accordance with Detailed Specification "Project Clean-Up and Restoration, Special," and as determined by the Engineer.

3. Replace or repair damaged features.

4. Provide the Engineer with written certification that all property that was used or damaged during performance of the work, including property outside of the project limits, has been restored in accordance with the Contract Documents, and applicable local, state, and federal requirements.

5. Provide written certification that the project has been inspected in compliance with the Contract Documents, the work has been completed in accordance with the Contract Documents, including applicable testing in the presence of the Engineer.

6. Clean paved areas, including portions of Lot M29 and public sidewalks directly adjacent to the site within 5 working days before opening the pavement surface to traffic taking precautions so as not to produce airborne dust when cleaning pavement.

7. Rake clean other surfaces of the grounds.

e. Final Inspection.- The Engineer will conduct the final inspection within 7 days of receiving the Contractor's written notification that the work has been completed. The Contractor must attend the final inspection.

Within 7 days of the final inspection, the Engineer will provide written notice to the Contractor of a satisfactory final inspection or will provide a list of specific defects to be remedied in order to achieve a satisfactory final inspection.

Should the Engineer consider the work not complete and ready for final payment, the Engineer shall notify the Contractor in writing, stating the reasons. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written notice to the Engineer certifying that the work is complete. The Engineer will re-inspect the work.

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Should the Engineer be required to perform additional re-inspections because of failure of the work to comply with the original certifications of the Contractor, the Engineer will deduct the cost of the re-inspections from the final amount to be paid to the Contractor.

After achieving satisfactory final inspection, the Contractor is relieved of the duty of maintaining and protecting the project. In addition, the Contractor is relieved of their responsibility for third-party damage claims, and for damage to the work that may occur after satisfactory final inspection.

f. Final Acceptance.- Within 7 days of satisfactory final inspection and submission of all required project and materials testing documentation by the Contractor, the Engineer will give the Contractor written notification of final acceptance.

The Contractor, without prejudice to the terms of the contract, is liable to the City at any time, both before and after final acceptance, for latent defects, fraud, such gross mistakes as may amount to fraud, or actions affecting the City's rights under any warranty or guarantee.

g. Final Payment.- The Contractor shall submit a final Application for Payment in accordance with the requirements of the Contract Documents.

Within 30 calendar days after final acceptance, the Engineer will prepare a final estimate of work performed. The Contractor will have 30 calendar days from the issuance of the final estimate to file a claim or objections to the quantities within the final estimate. If no claim or objections are filed within 30 calendar days, the City will process the final estimate for approval and final payment. At that time, the Contractor will be furnished a copy of the approved final estimate.

1. The final payment will be made when the Contractor has provided the following:

- A. All reports or documents required by the Engineer.
- B. The Consent of Surety for payment of the final estimate.
- C. Signed Contractor's Declaration (see Section 43 of the "General Conditions").

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D. Satisfactory evidence by signed Contractor's Affidavit (see Section 44 of the "General Conditions") that all the indebtedness due to the contract has been fully paid or satisfactorily secured.

The City can recover all overpayments from the Contractor in the final estimate.

APPENDICES



City of Ann Arbor
PLANNING & DEVELOPMENT SERVICES — BUILDING DIVISION
 100 North Fifth Avenue | P.O. Box 8647 | Ann Arbor, Michigan 48107-8647
 p. 734.794.6269 | f. 734.994.8460 | e. building@a2gov.org

**GRADING/SOIL EROSION AND SEDIMENTATION
 CONTROL PERMIT APPLICATION**

Part 91 of Act No. 451 of Public Acts of 1994 as amended, being Section 324.9101 - 324.9123
 of Michigan Compiled Laws and Title V, Chapter 63, City of Ann Arbor Ordinance Code

Permission is requested by the Property Owner and designated agent to perform work as
 described below and on the reverse side, and as shown on the attached plans.

YOU MUST FILL IN ALL FIELDS

PROPERTY	<i>Address</i> Nichols Arboretum, Ann Arbor, MI	<i>Tax ID No.</i>	<i>Lot #</i> AA Parcel: 09-09-28-101-006 UofM Parcel: 09-09-27-201-001
	<i>Between</i> E. Medical Center Drive	<i>And</i> Riverview Ct.	
PROPERTY OWNER	<i>Name</i> City of Ann Arbor/University of Michigan	<i>Ph</i> <i>Fax</i>	
	<i>Address</i> AA: PO Box 8647 Ann Arbor, MI 48107 U of M: Treasurer's Office 3003 S. State St. Ann Arbor, MI 48109		
CONTRACTOR/ DESIGNATED AGENT	<i>Last Name/Business</i> TBD	<i>Ph</i> <i>Fax</i>	
	<i>Address</i>	<i>City</i>	<i>License No.</i> <i>Exp.</i>
ARCHITECT/ ENGINEER	<i>Name</i> Fishbeck, Thompson, Carr & Huber	<i>Ph</i> (248) 324-2090 <i>Fax</i> (248) 324-0930	
	<i>Address</i> 39500 Mackenzie, #100, Novi, MI 48377	<i>License No.</i> 43831	
PROJECT INFORMATION/NAME: NICHOLS ARBORETUM SEWER AND SIPHON REHABILITATION			
TYPE OF WORK			
<input type="checkbox"/> Build/Finish <input type="checkbox"/> Addition(s) to <input type="checkbox"/> Alteration(s) to <input checked="" type="checkbox"/> Demolition/Cleaning <input type="checkbox"/> Move <input checked="" type="checkbox"/> Repair(s) to <input type="checkbox"/> Replacement of <input type="checkbox"/> Other _____	<input type="checkbox"/> New <input checked="" type="checkbox"/> Existing <input checked="" type="checkbox"/> Portion(s) of existing <input type="checkbox"/> Foundation only <input type="checkbox"/> Other _____ _____ _____	<input type="checkbox"/> Single Family Residence <input type="checkbox"/> Garage <input type="checkbox"/> Driveway <input type="checkbox"/> Multiple Structure Development <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Utility <input type="checkbox"/> Public Facility <input type="checkbox"/> Other _____	

You **MUST** submit **TWO (2)** copies of plans.

FLOODPLAIN/WETLAND

Name of and distance to nearest lake, stream or drain: 50 Feet to Huron River

Does project require MDEQ Permit? [] Yes [x] No DEQ Permit #

DESCRIPTION OF WORK Cleaning and televising of existing 36" sanitary sewer and 24" siphon tubes, cure-in-place pipelining in 36" sanitary sewer and construction of gravel maintenance drive and access pad.

ON-SITE CONTACT:

NAME: TBD Company Name

ADDRESS: PHONE: ()

Total Area of Parcel (In Acres): 123 E-MAIL:

Total Area of Proposed Earth Disruption (Nearest 1/10th of an acre): 0.50 acres

2 COPIES OF THE GRADING PLAN MUST ACCOMPANY THIS APPLICATION. Please verify that all of the following information required is included on the grading plan:

For Projects on One Single Family Parcel or Lot:

- [x] The scale of the grading plan. (Not to exceed 1"= 50'.)
[x] A description of the soil types of the exposed land area contemplated for the earth change.
[x] All natural features (landmark trees, wetlands, floodplains, woodlands, steep slopes, etc.) within 50 feet of proposed disturbance; and watercourses or lakes within 500 feet of the proposed disturbance.
[x] All existing and proposed structures are shown on the plan (differentiate between the two).
The physical limits of each proposed earth change including any areas that will be disturbed.
[x] Existing and proposed grade changes (differentiate between the two) using contour lines or accurate slope descriptions.
[] Arrows indicating existing and proposed (differentiate between the two) water runoff patterns.
[x] A description and the location of all proposed temporary and permanent soil erosion and sediment control measures necessary to prevent offsite sedimentation.

FOR NEW HOUSE CONSTRUCTION ONLY, the following relative spot elevations are shown:

- [] First floor elevation.
[] Lowest floor (basement) elevation for a walkout.
[] A spot elevation of the street in front of the structure.
[] High and low spot elevations on the lot (existing and proposed)

Proposed Construction Sequence (month/year)*:

Project start date: 12 / 2016
Gravel drive or mud mat installed: 12 / 2016
Erosion control measures installed (erosion control inspection): 12 / 2016
Land clearing: 1 / 2017
Excavation started: 1 / 2017
Stormwater Management Sys. installed: /
Utilities constructed: 1 - 3 / 2017 (Lined)
Roads constructed: /
Pre-footing inspection: /
Install foundation: /
Final grading/ seeding: 4 or 5 / 2017
Permanent erosion controls installed: 3 / 2017
Temporary erosion controls removed1: 3 / 2017
Project complete (final inspection)2: 5 / 2017

* Please note that all of the items may not applicable to all jobs. If this is the case, simply indicate N/A.

1 Temporary erosion controls cannot be removed until the site is stabilized.

2 Site must be stabilized with permanent measures prior to scheduling of the final inspection.

NOTE:

- 1. Earth disruption may not commence prior to issuance of Grading/Soil Erosion and Sedimentation Control permit.
2. If project involves work within a floodplain, wetland, or cross section of a lake or stream, you must obtain an MDEQ permit prior to issuance of this permit.
3. Permittee is cautioned that grade changes resulting in the impoundment of water or increased runoff onto adjacent property is subject to civil damage litigation.

The Property Owner's signature is required either as the sole permit holder or to authorize the contractor to be the designated agent.

Permit holder will be:

Property Owner

Contractor / Designated Agent

(NOTE: Contractor is NOT allowed to act as a designated agent if Contractor is in non-compliance status on other permits.)

I (we) affirm that the above information is accurate and that I (we) will conduct the above described earth change in accordance with Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Chapter 63 of the Ann Arbor Ordinance Code, the documents accompanying this application, and with all terms and conditions of the permit as it may be issued, and agree to pay all fees and costs that may come due as a result of any activity under the permit.

Property Owner's Signature

Print Name

Date

I (we), the Property Owner, authorize the Contractor identified on this application to be my Designated Agent and to secure a grading permit on my behalf.

Property Owner's Signature

Print Name

Date

I (we) affirm that the above information is accurate and that I (we) will conduct the above described earth change in accordance with Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, Chapter 63 of the Ann Arbor Ordinance Code, the documents accompanying this application, and with all terms and conditions of the permit as it may be issued, and agree to pay all fees and costs that may come due as a result of any activity under the permit.

Designated Agent's Signature

Print Name

Date

OFFICE USE ONLY

GRADING NOTES: _____

Approved By: _____ Approval Date: _____

FEES

Grading Permit \$ _____

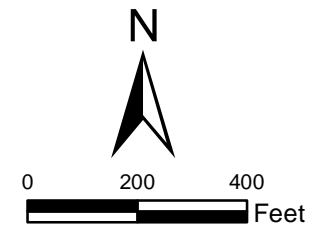
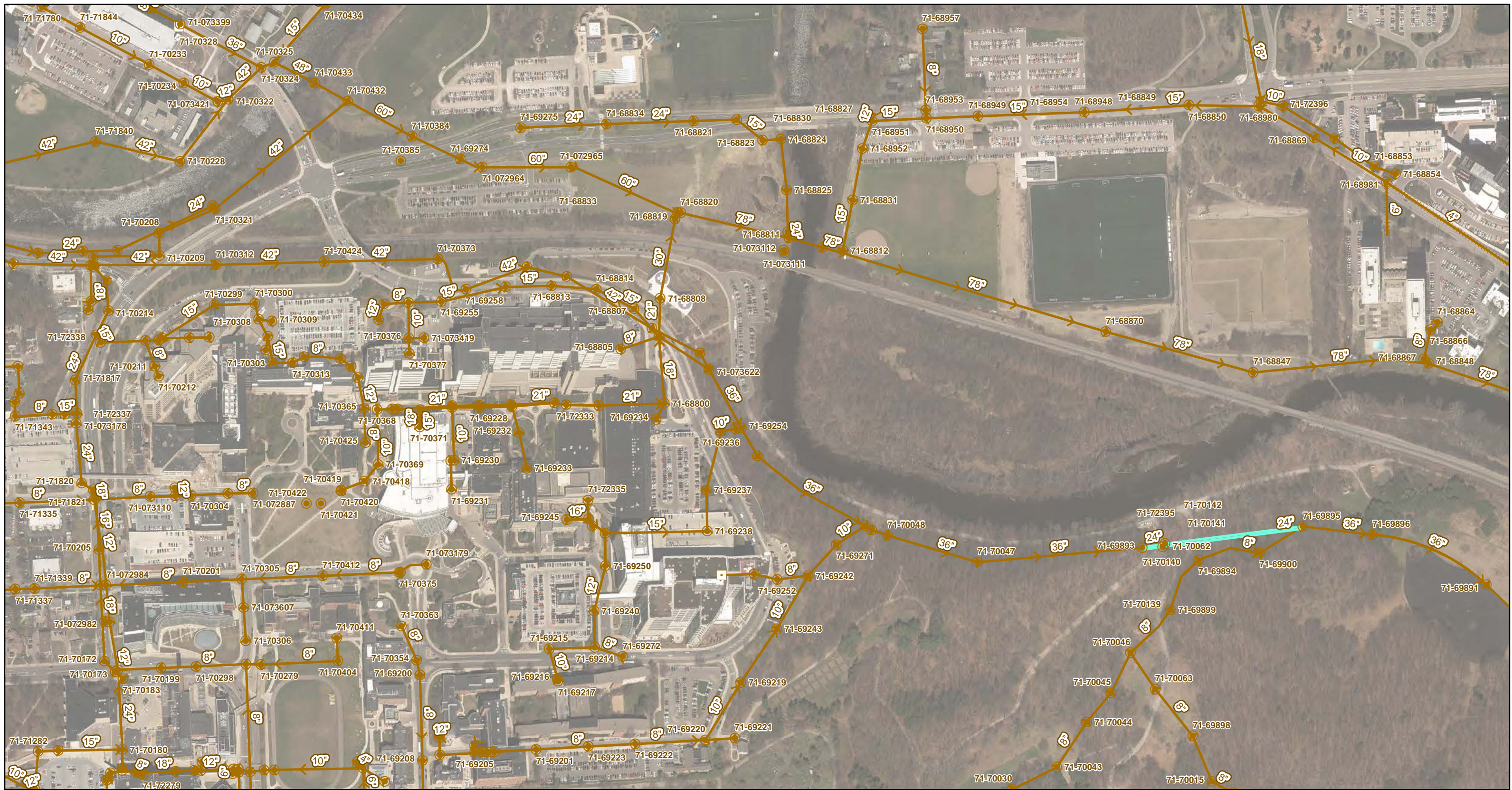
Cash Bond: \$ _____

Inspection Escrow:

(Months of construction) x (\$100/ Month)

_____ X _____ = \$ _____

- Escrow must be collected at issuance of permit
- Designated agent is responsible for contacting city, for release of outstanding escrow, at completion of project



Project
CITY INFRASTRUCTURE
 Figure No.
 1
 Title
SANITARY SEWER MAP

ATTACHMENTS

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2016 - ENDING APRIL 29, 2017

\$12.93 per hour

If the employer provides health care benefits*

\$14.43 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 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.

Certification: I hereby certify that to my knowledge, there is no conflict of interest involving the vendor named 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:

Vendor Name	Vendor Phone Number
Conflict of Interest Disclosure *	
Name of City of Ann Arbor employees, elected officials, or immediate family members with whom there maybe a potential conflict of interest.	() Relationship to employee _____ () Interest in vendor's company _____ () Other _____

*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 the information provided is true and correct by my signature below:

Signature of Vendor Authorized Representative Date Printed Name of Vendor Authorized Representative

PROCUREMENT USE ONLY

- Yes, named employee was involved in Bid / Proposal process.
- No, named employee was not involved in procurement process or decision.

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/departments/city-clerk](http://www.a2gov.org/departments/city-clerk)

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 has a grievance alleging a violation of this chapter, he/she has 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 alleged discriminatory action to file a complaint with the city's Human Rights Commission. If an individual fails to file a complaint alleging a violation of this chapter within the specified time frame, the complaint will not be considered by the Human Rights Commission. The complaint should be made in writing to the Human Rights Commission. The complaint may be filed in person with the City Clerk, by e-mail at aahumanrightscommission@gmail.com, or by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107). The complaint must contain information about the alleged discrimination, such as name, address, phone number of the complainant and location, date and description of the alleged violation of this chapter.

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.