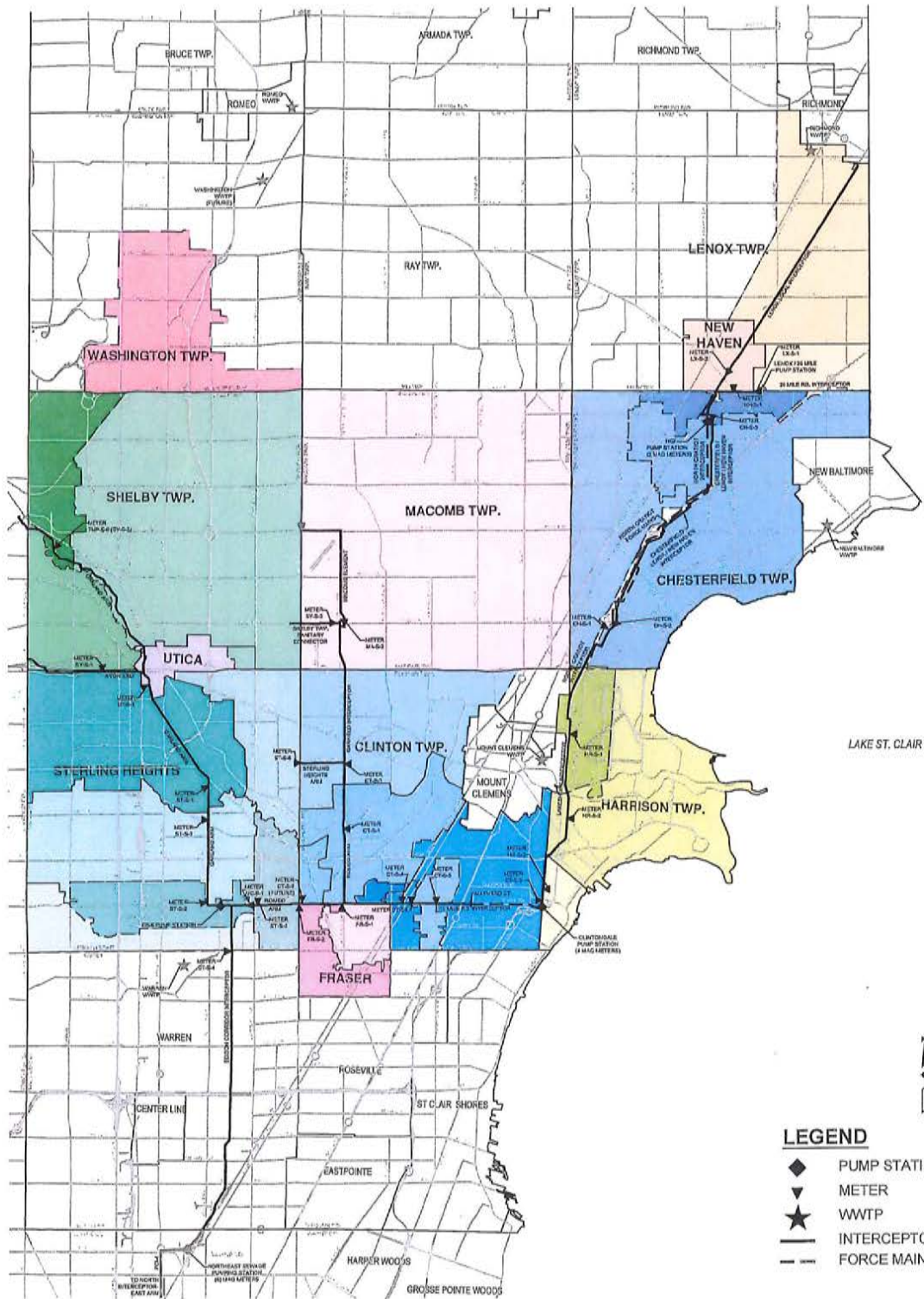


MACOMB INTERCEPTOR DRAIN
INTRA-COUNTY DRAINAGE BOARD
OCTOBER 21, 2019
11:15 A.M.
AGENDA

	Page
1. Call of meeting to order and roll call	
2. Approval of Agenda for October 21, 2019	
3. Approval of Minutes for September 9, 2019	4
4. Public Participation	
5. Project Updates – Vince Astorino/Stephen Downing	
6. Bond Refinancing Resolution – Estimated Savings \$3.2 million – Brian Baker	6
Motion: To approve the resolution authorizing Macomb Interceptor Drain Drainage District, Clintondale Pump Station Improvements Drainage District Refunding Bonds	
7. FK Engineering Segment 5 Lining Design Change Order #1 – MASW Analysis – Vince Astorino	19
Motion: To approve Change Order #1 for \$140,000 for Segment 5 Lining MASW Services – FK Engineering	
8. Sanitary Interceptor Inspection Project Award Recommendation – Vince Astorino	32
Motion: To approve the engineering services and contract oversight proposal from Fishbeck, Thompson, Carr & Huber Inc. for \$229,800 for the Sanitary Interceptor Inspection Program	
9. FK Engineering Change Order #2 As-Needed Contract – Segment 5 Grouting Engineering Services – Vince Astorino	40
Motion: To approve Change Order #2 for \$200,000 for As-Needed Engineering Services – FK Engineering	
10. Metco As-Needed Contract Change Order #1 – Segment 5 Grouting Flow Control – Vince Astorino	42
Motion: To approve Change Order #1 for \$75,000 for As-Needed Engineering & Flow Control Services – Metco Services	

11. Final Change Order & Settlement Agreement for Lanzo 2015 MID Lining Project – Stephen Downing	44
Motion: To approve the final balancing change order reflecting a \$270,916 reduction and the liquidated damages settlement agreement with Lanzo Trenchless Technologies	
12. Jacobs Engineering Change Order #1 for Odor & Corrosion Study - Fan Testing - Stephen Downing	56
Motion: To approve Change Order #1 for \$45,500 for Odor & Corrosion Fan Testing with Jacobs Engineering	
13. Consideration for approval of invoices (see attached)	78
14. Financial Report – Bruce Manning	81
15. Closed Session – Attorney Client Communication	
16. Adjourn	

MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT



Candice S. Miller

MACOMB COUNTY PUBLIC WORKS COMMISSIONER

fitch

UPDATED: FEBRUARY 2017

An adjourned meeting of the Intra-County Drainage Board for the **MACOMB INTERCEPTOR DRAIN** was held in the Office of the Macomb County Public Works Commissioner, 21777 Dunham, Clinton Township, Michigan, on September 9, 2019, at 11:00 A.M.

PRESENT: Candice S. Miller, Chair
Bryan Santo, Member
Robert Mijac, Member

ALSO PRESENT: Rob Leonetti, Macomb County Board of Commissioners; Vince Astorino, Operations & Flow Manager, Brian Baker, Chief Deputy, Jeff Bednar, P.E., Environmental Resources Manager, Daryl Gapshes, P.E., Plan Review Manager, Bruce Manning, Financial Manager, Tom Stockel, Construction Engineer, Madison Tanghe, Senior Secretary, Macomb County Public Works

The meeting was called to order by the Chair, Candice Miller. A motion was made by Mr. Santo, supported by Mr. Mijac to approve the agenda as presented.

Adopted: YEAS: 3
NAYS: 0

Minutes of the meeting of August 12, 2019 were presented. A motion was made by Mr. Mijac, supported by Mr. Santo to approve the minutes as presented.

Adopted: YEAS: 3
NAYS: 0

The meeting was opened to public participation, then closed, there being no comments from the public.

Mr. Astorino updated the board on pumping chemical grout into leaks found in the pipe under 15 Mile Road between Fontana and the ITC Corridor.

A motion was made by Mr. Mijac, supported by Mr. Santo to receive and file the project update by Mr. Astorino.

Adopted: YEAS: 3
NAYS: 0

The Chair presented the invoices totaling \$3,979,920.86 to the board for review and approval.

A motion was made by Mr. Mijac, supported by Mr. Santo to approve the invoices as presented.

Adopted: YEAS: 3
NAYS: 0

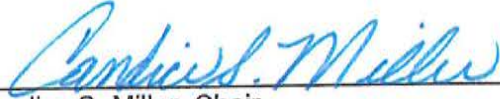
A motion to receive and file the financial report given by Mr. Manning was made by Mr. Santo and supported by Mr. Mijac.

Adopted: YEAS: 3
NAYS: 0

There being no further business, it was moved by Mr. Mijac, supported by Mr. Santo, that the meeting of the Macomb Interceptor Drain Board be adjourned.

Adopted: YEAS: 3
NAYS: 0

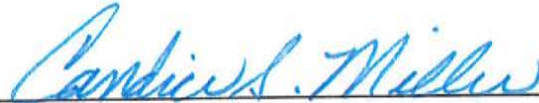
The meeting was adjourned at 11:15 a.m.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

STATE OF MICHIGAN
COUNTY OF MACOMB

I certify that the foregoing is a true and correct copy of proceedings taking by the Intra-County Drainage Board for the Drainage District shown on the attached set of minutes, on September 9, 2019 the original of which is on file in the Public Works Commissioner's Office. Public notice of the meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1975, including, in the case of a special or rescheduled meeting or a meeting secured for more than 36 hours, notice by posting at least 18 hours prior to the time set for the meeting.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

DATED: 9/9/19

Founded in 1852
by Sidney Davy Miller

MILLER CANFIELD

MICHIGAN
ILLINOIS
NEW YORK
OHIO
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CANADA
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STEVEN D. MANN
TEL (313) 496-7509
FAX (313) 496-8451
E-MAIL mann@millercanfield.com

Miller, Canfield, Paddock and Stone, P.L.C.
150 West Jefferson, Suite 2500
Detroit, Michigan 48226
TEL (313) 963-6420
FAX (313) 496-7500
www.millercanfield.com

October 11, 2019

Via email only

Brian Baker
Chief Deputy Public Works Commissioner
Macomb County Public Works Commission
21777 Dunham Road
Clinton Township, MI 48036

Re: Resolution Authorizing Macomb Interceptor Drain Drainage District, Clintondale
Pump Station Improvements Drainage District Refunding Bonds, Series 2020
(Limited Tax General Obligation)

Dear Brian:

Enclosed please find the resolution authorizing the issuance of the above-captioned bonds (the "Refunding Bonds"), which we have prepared for consideration by the Drainage Board at its meeting on October 21st. The resolution authorizes the issuance of refunding bonds in an amount not to exceed \$22,400,000 to pay the cost of refunding the Drainage District's outstanding Clintondale Pump Station Improvements Drainage District Refunding Bond, Series 2011, dated August 19, 2011, to achieve interest rate savings.

The Refunding Bonds will be primarily secured by a full faith and credit pledge of the Drainage District. The Refunding Bonds are being issued in anticipation of collections of an equal amount of future due installments on the Assessment Roll, together with interest and investment income thereon, and are payable out of such installments. As secondary security, the Refunding Bonds will contain a pledge of the County's limited tax full faith and credit, just as the prior bonds were secured.

The resolution was prepared based upon the bond specifications provided by Bendzinski & Co., the Drainage District's Registered Municipal Advisor. The resolution authorizes the Public Works Commissioner and the Chief Deputy Public Works Commissioner, each individually, to take all steps necessary to accomplish the sale, issuance and delivery of the Refunding Bonds. The resolution provides for a negotiated sale of the Refunding Bonds to Hilltop Securities Inc. (the "Underwriter").

MILLER, CANFIELD, PADDOCK AND STONE, P.L.C.

Brian Baker

-2-

October 11, 2019

Section 16 of the resolution confirms the appointment of Miller Canfield as bond counsel. This section also recognizes that Miller Canfield represents the Underwriter in other unrelated matters. Miller Canfield is not representing the Underwriter with respect to the Bonds and will only represent the Drainage District in this financing.

After adoption, I would appreciate receiving four (4) original signed copies of the resolution for bond transcripts.

If you have any questions, please do not hesitate to call.

Very truly yours,

Miller, Canfield, Paddock and Stone, P.L.C.

By: 

Steven D. Mann

cc: Bruce Manning, Financial Manager
Madison Tocco, Macomb County
Kellie Kource, Macomb County
Robert J. Bendzinski, Bendzinski & Co.
Louis C. Orcutt, Hilltop Securities Inc.
Alan Szuma, Miller Canfield

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**Drainage Board of the Macomb Interceptor Drain Drainage District
County of Macomb, State of Michigan**

RESOLUTION AUTHORIZING
MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT
CLINTONDALE PUMP STATION IMPROVEMENTS
DRAINAGE DISTRICT REFUNDING BONDS, SERIES 2020
(LIMITED TAX GENERAL OBLIGATION)

Minutes of a meeting of the Drainage Board (the "Drainage Board") of the Macomb Interceptor Drain Drainage District (the "District") held in the office of the Macomb County Public Works Commissioner, 2177 Dunham, Clinton Township, Michigan on October 21, 2019 at __:___ a.m./p.m., prevailing Eastern Time.

PRESENT: Members: _____

ABSENT: Members: _____

The following preamble and resolution were offered by Member _____ and supported by Member _____.

WHEREAS, the Macomb Interceptor Drain Drainage District (the "District") has previously been established within the County of Macomb (the "County") pursuant to the provisions of Chapter 20 of Act 40, Public Acts of Michigan, 1956, as amended (the "Drain Code"); and

WHEREAS, the provisions of Part VI of Act 34, Public Acts of Michigan, 2001, as amended ("Act 34") authorize the Drainage District to refund all or any part of its bonded indebtedness; and

WHEREAS, the District previously issued its CLINTONDALE PUMP STATION IMPROVEMENTS DRAINAGE DISTRICT BONDS, SERIES 2011, dated November 18, 2011, in the original principal amount of \$30,800,000, in order to finance the costs of acquiring and constructing improvements to the Clintondale Pump Station (the "Prior Bonds") pursuant to resolution of the Drainage Board adopted on August 19, 2011 (the "Prior Bonds Resolution"); and

WHEREAS, the District determines that it is in the best interest of the District to issue bonds in an amount not to exceed Twenty-Two Million Four Hundred Thousand Dollars (\$22,400,000) to currently refund all or a portion of the Prior Bonds; and

WHEREAS, the District desires to sell the bonds pursuant to a negotiated sale in order to preserve maximum flexibility in the timing and structure of the transaction and to minimize the costs of issuance thereof; and

WHEREAS, as additional security for the Bonds, the County has pledged its full faith and credit for the prompt payment of the principal of and interest on the bonds when due as authorized by Section 474 of the Drain Code; and

WHEREAS, the District also deems it advisable to authorize the County Public Works Commissioner and the County Chief Deputy Public Works Commissioner, or either one acting alone (each an "Authorized Officer") to accept an offer to purchase the bonds from Hilltop Securities Inc. (the "Underwriter"), negotiate, approve and execute a bond purchase agreement with the Underwriter and to approve various other terms and documents in connection with the sale, issuance and delivery of the bonds to the Underwriter.

THEREFORE, BE IT RESOLVED BY THE DRAINAGE BOARD FOR THE MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT, as follows:

1. Issuance of Bonds. Bonds of the District designated "Clintondale Pump Station Improvements Drainage District Refunding Bonds, Series 2020 (Limited Tax General Obligation)" (the "Bonds"), are hereby authorized to be issued in one or more series, with such changes to the bond name, designation or suffix as may be appropriate for each series based on the type of bonds issued, in the aggregate principal sum of not to exceed Twenty-Two Million Four Hundred Thousand Dollars (\$22,400,000) or such lesser amount as shall be determined by the an Authorized Officer, upon sale of the Bonds, for the purpose of currently refunding the Prior Bonds and paying the costs of issuing the Bonds.

2. Bond Details. The issue shall consist of bonds in fully registered form of the denomination of \$5,000 or multiples of \$5,000 up to the amount of a single maturity, numbered consecutively in order of registration, and dated as of the date of delivery. The Bonds shall mature on May 1 in the years and in the principal amounts as determined by the Authorized Officer at the time of sale. The Bonds shall bear interest at a rate or rates to be determined upon negotiated sale thereof, payable semi-annually on May 1 and November 1 in the years as determined by the Authorized Officer at the time of sale, *provided that* the maximum interest rate on the Bonds shall not exceed 6.00% per annum, the Bonds shall be sold at a price not less than 98% of the par value of the Bonds, and the Underwriter's discount shall not exceed 0.70% of the principal amount of the Bonds.

The principal of the Bonds shall be payable at a bank or trust company selected by the Authorized Officer, as registrar and transfer agent for the Bonds (the "Transfer Agent") upon presentation and surrender of the appropriate Bond. Interest on the Bonds shall be payable to the registered owner of record as of the 15th day of the month prior to each interest payment date. The date of determination of registered owner for purposes of payment of interest as provided in this section can be changed by the District to conform to market practice in the future. Notwithstanding the foregoing, if the Bonds are held in book-entry form by The Depository Trust Company, New York, New York ("DTC"), payment shall be made in the manner prescribed by DTC. The Authorized Officer or the County Treasurer each is hereby severally authorized to enter into all required contractual arrangements with the Transfer Agent. The District reserves the right to change the Transfer Agent at any time upon written notice to registered owners of the Bonds not less than 60 days prior to an interest payment date.

The Bonds may be issued in book-entry-only form through DTC; and the Authorized Officer or the County Treasurer each is authorized to execute such custodial or other agreement with DTC as may be necessary to accomplish the issuance of the Bonds in book-entry-only form. In the event the Bonds are no longer held in book-entry-only form, then the Transfer Agent shall also serve as bond registrar and paying agent.

Any Bond may be transferred upon the books required to be kept pursuant to this section by the person in whose name it is registered, in person or by his duly authorized attorney, upon surrender of the bond for cancellation, accompanied by delivery of a duly executed written instrument of transfer in a form approved by the Transfer Agent. Whenever any Bond or Bonds shall be surrendered for transfer, the Transfer Agent shall authenticate and deliver a new Bond or Bonds for like aggregate principal amount. The Transfer Agent shall require the payment by the bondholder requesting the transfer of any tax or other governmental charge required to be paid with respect to the transfer.

The Bonds shall be subject to redemption prior to maturity as determined at the time of sale of the Bonds. The Bonds of any series may be issued as serial or term bonds or both. If term bonds are issued, then the Bonds designated as term bonds shall be subject to mandatory redemption prior to maturity as determined at the time of sale of the Bonds. Unless waived by any registered owner of Bonds to be redeemed, official notice of redemption shall be given by the Transfer Agent on behalf of the District. Such notice shall be dated and shall contain at a minimum the following information: original issue date; maturity dates; interest rates; CUSIP numbers, if any; certificate numbers, and in the case of partial redemption, the called amounts of each certificate; the redemption date; the redemption price or premium; the place where Bonds called for redemption are to be surrendered for payment; and that interest on Bonds or portions thereof called for redemption shall cease to accrue from and after the redemption date.

In addition, further notice shall be given by the Transfer Agent in such manner as may be required or suggested by regulations or market practice at the applicable time, but no defect in such further notice nor any failure to give all or any portion of such further notice shall in any manner defeat the effectiveness of a call for redemption if notice thereof is given as prescribed herein.

3. Execution of Bonds. The Bonds shall be signed by the manual or facsimile signature of the Chairperson of the Drainage Board and countersigned by the manual or facsimile signature of any other member of the Drainage Board. No Bond shall be valid until authenticated by an authorized representative of the Transfer Agent unless the purchaser thereof does not require the Bonds to be authenticated. If the Bonds are not authenticated, then at least one signature on the Bonds shall be a manual signature. The Bonds shall be delivered to the Transfer Agent for authentication and shall then be delivered to the purchaser in accordance with instructions from the Authorized Officer or the County Treasurer upon payment of the purchase price for the Bonds in accordance with the bid therefor when accepted. Executed blank bonds for registration and issuance to transferees shall simultaneously, and from time to time thereafter as necessary, be delivered to the Transfer Agent for safekeeping.

4. Debt Retirement Fund. All collections of the Macomb Interceptor Drain Special Assessments (as defined in the Prior Bonds Resolution), including interest thereon, shall be set aside by the County Treasurer as collected and deposited into a special depository account to be

designated as MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT 2020 REFUNDING BONDS DEBT RETIREMENT FUND (the "Debt Retirement Fund"), the moneys from time to time on deposit therein to be used solely and only for the payment of principal of and interest on the Bonds herein authorized as they mature.

In the event cash or direct obligations of the United States or obligations the principal of and interest on which are guaranteed by the United States, or a combination thereof, the principal of and interest on which, without reinvestment, come due at times and in amounts sufficient to pay at maturity or irrevocable call for earlier optional redemption, the principal of, premium, if any, and interest on the Bonds, shall be deposited in trust, the Bonds shall be defeased and the owners of the Bonds shall have no further rights under this order except to receive payment of the principal of, premium, if any, and interest on the Bonds from the cash or securities deposited in trust and the interest and gains thereon and to transfer and exchange Bonds as provided in this order.

5. Bond Proceeds. Proceeds of the Bonds, including any premium received upon delivery of the Bonds, shall be used to pay the costs of issuance of the Bonds and to secure payment of the Prior Bonds as provided in this paragraph. From the proceeds of the Bonds there shall be set aside a sum sufficient to pay the costs of issuance of the Bonds in a fund designated the MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT 2020 REFUNDING BONDS COSTS OF ISSUANCE FUND (the "Costs of Issuance Fund"), which may be established by the District, the County Treasurer, or the Escrow Agent (hereinafter defined). Moneys in the Costs of Issuance Fund shall be used solely to pay expenses of issuance of the Bonds. The balance of the proceeds of the Bonds, together with any moneys transferred by the District at the time of sale of the Bonds from the debt retirement fund for the Prior Bonds, and any other available funds provided by the District, shall be invested in cash or direct obligations of or obligations the principal of and interest on which are unconditionally guaranteed by the United States of America or other obligations the principal of and interest on which are fully secured by the foregoing (the "Escrow Fund") and used to pay principal of and interest on the Prior Bonds. The Escrow Fund shall be held by a bank or trust company, as trustee and escrow agent (the "Escrow Agent"), in trust pursuant to an Escrow Agreement (the "Escrow Agreement") which shall irrevocably direct the Escrow Agent to take all necessary steps to call for redemption Prior Bonds specified by the Authorized Officer upon sale of the Bonds, including publication and mailing of redemption notices, on any date specified by the Authorized Officer on which the Prior Bonds may be called for redemption. The investments held in the Escrow Fund shall be such that the principal and interest payments received thereon will be sufficient, without reinvestment, to pay the principal of and interest on the Prior Bonds as they become due pursuant to maturity or the call for redemption required by this paragraph. The Authorized Officer is hereby authorized to select and retain on behalf of the District an Escrow Agent to serve under the Escrow Agreement and is further authorized to negotiate with the Escrow Agent and to execute the Escrow Agreement. Any amounts remaining in the Cost of Issuance Fund after payment of costs of issuance of the Bonds shall be transferred to the Debt Retirement Fund for the Bonds.

6. Payment of Bonds; Limited Tax Pledge of the District. The full faith and credit of the District is hereby pledged for the payment of principal of and interest on the Bonds. The Bonds, being issued in anticipation of collections of special assessment against the Cities of

Fraser, Sterling Heights and Utica, the Charter Townships of Chesterfield, Clinton, Harrison and Shelby, the Townships of Lenox, Macomb and Washington, the Village of New Haven, and any other persons assessed under the applicable provisions of Drain Code, together with interest and investment income thereon, are payable out of such special assessments. If for any reason the collections of the Special Assessment Roll shall not be sufficient to pay the principal of and interest on the Bonds, then the Drainage Board shall make such additional assessments therefor against the public corporations and the benefited lands as may be necessary, apportioned as in the first instance, as authorized by the provisions of the Drain Code.

7. Limited Tax Pledge of the County. Pursuant to a resolution adopted by the Board of Commissioners of the County on September 26, 2019, under the authorization provided in the Drain Code, the County will pledge its full faith and credit for the payment of principal of and interest on the Bonds herein authorized; and pursuant to such resolution and law, in the event of an insufficiency of funds in the Debt Retirement Fund to make such payments as they are due on the Bonds, the County will promptly advance from its general funds as a first budget obligation sufficient moneys to promptly pay said principal or interest or, if necessary levy taxes upon all taxable property in the County therefor, subject to applicable constitutional, statutory, and charter tax rate limitations.

8. Bond Form. The Bonds shall be in substantially the following form with such revisions, additions and deletions as may be advisable or necessary to comply with the final terms of the Bonds established upon sale thereof:

UNITED STATES OF AMERICA
STATE OF MICHIGAN
COUNTY OF MACOMB

MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT

CLINTONDALE PUMP STATION IMPROVEMENTS
DRAINAGE DISTRICT REFUNDING BOND, SERIES 2020
(LIMITED TAX GENERAL OBLIGATION)

<u>Interest Rate</u>	<u>Date of Maturity</u>	<u>Date of Original Issue</u>	<u>CUSIP</u>
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Registered Owner:

Principal Amount:

Dollars

The MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT, County of Macomb, State of Michigan (the "District"), acknowledges itself to owe and for value received, hereby promises to pay to the Registered Owner specified above, or registered assigns, the Principal Amount specified above, in lawful money of the United States of America, on the Date of

Maturity specified above, [unless prepaid prior thereto as hereinafter provided,] with interest thereon (computed on the basis of a 360-day year consisting of twelve 30-day months) from the Date of Original Issue specified above or such later date to which interest has been paid, until paid, at the Interest Rate per annum specified above, first payable on _____, 2020 and semiannually thereafter. Principal of this bond is payable upon presentation and surrender hereof at the principal corporate trust office of _____ [transfer agent], or such other transfer agent as the District may hereafter designate by notice mailed to the registered owner of record not less than sixty (60) days prior to any interest payment date (the "Transfer Agent"). Interest on this bond is payable by check or draft mailed by the Transfer Agent to the person or entity who or which is as of the fifteenth (15th) day of the month prior to each interest payment date, the registered owner of record, at the registered address.

This bond is one of a series of bonds of even Date of Original Issue aggregating the principal sum of \$_____ issued under and in full compliance with the Constitution and statutes of the State of Michigan, and particularly Act 40, Public Acts of Michigan, 1956, as amended ("Act 40"), for the purpose of refunding a prior bond issue of the District.

The bonds of this issue are issued in anticipation of and payable out of the collection of special assessments against the Cities of Fraser, Sterling Heights and Utica, the Charter Townships of Chesterfield, Clinton, Harrison and Shelby, the Townships of Lenox, Macomb and Washington, the Village of New Haven, and any other persons assessed under the applicable provisions of Act 40. The District by resolution of its Drainage Board on October 21, 2019, has pledged the full faith and credit of the District, including the lands embraced within the District and the public corporations assessed at large in the proportion that they are assessed for the benefits received for the prompt payment of the principal of and interest on the bonds of this issue when due.

As additional security for the bonds of this issue, the County of Macomb, State of Michigan (the "County") by resolution of its Board of Commissioners adopted on September 26, 2019, has pledged its full faith and credit for the prompt payment of the principal of and interest on the bonds of this issue when due, and if the assessments are insufficient for such payment, then the County shall advance monies from its general fund for payment thereof, or, if necessary, levy a tax on all taxable property in the County for such payment within applicable constitutional, statutory, and charter tax rate limitations.

[Bonds of this issue shall not be subject to redemption prior to maturity.][Bonds or portions of bonds in multiples of \$5,000 of this issue maturing on or after May 1, 20__ shall be subject to redemption prior to maturity without a premium, at the option of the District, in such order as the District shall determine and within any maturity by lot, on any date on or after May 1, 20__, at par plus accrued interest to the date fixed for redemption.]

[Mandatory redemption provisions will be inserted if term bonds are issued].

[In case less than the full amount of an outstanding bond is called for redemption, the Transfer Agent upon presentation of the bond called in part for redemption shall register, authenticate and deliver to the registered owner a new bond of the same maturity and in the principal amount of the portion of the original bond not called for redemption.]

[Notice of redemption shall be given by the Transfer Agent to each registered owner of bonds or portions thereof to be redeemed by mailing such notice not less than thirty (30) days prior to the date fixed for redemption to the registered owner at the address of the registered owner as shown on the registration books of the District. Bonds shall be called for redemption in multiples of \$5,000, and bonds of denominations of more than \$5,000 shall be treated as representing the number of bonds obtained by dividing the denomination of the bonds by \$5,000, and such bonds may be redeemed in part. The notice of redemption for bonds redeemed in part shall state that, upon surrender of the bond to be redeemed, a new bond or bonds in the same aggregate principal amount equal to the unredeemed portion of the bonds surrendered shall be issued to the registered owner thereof with the same interest rate and maturity. No further interest on bonds or portions of bonds called for redemption shall accrue after the date fixed for redemption, whether the bonds have been presented for redemption or not, provided funds are on hand with the Transfer Agent to redeem the bonds or portion thereof.]

Any bond may be transferred by the person in whose name it is registered, in person or by the registered owner's duly authorized attorney or legal representative, upon surrender of the bond to the Transfer Agent for cancellation, together with a duly executed written instrument of transfer in a form approved by the Transfer Agent. Whenever any bond is surrendered for transfer, the Transfer Agent shall authenticate and deliver a new bond or bonds, in like aggregate principal amount, interest rate and maturity. The Transfer Agent shall require the bondholder requesting the transfer to pay any tax or other governmental charge required to be paid with respect to the transfer. The Transfer Agent shall not be required to issue, register the transfer of, or exchange any bond during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of bonds selected for redemption and ending at the close of business on the day of that mailing.

It is hereby certified and recited that all acts, conditions and things required to be done, exist and happen, precedent to and in the issuance of this bond and the series of bonds of which this is one, in order to make them valid and binding obligations of the District have been done, exist and have happened in regular and due form and time as provided by law.

This bond is not valid or obligatory for any purpose until the Transfer Agent's Certificate of Authentication on this bond has been executed by the Transfer Agent.

IN WITNESS WHEREOF, the District has caused this bond to be signed in its name by [the facsimile signatures of] the Chairperson of one member of the Drainage Board, all as of the Date of Original Issue.

Authorized Officer is hereby authorized to appoint one or more co-managing underwriters, if recommended by the Municipal Advisor. The Authorized Officer is authorized to negotiate and award the sale of the Bonds to the Underwriter pursuant to a bond purchase agreement, subject to the parameters set forth in this Resolution. The Authorized Officer is authorized to execute and deliver the bond purchase agreement on behalf of the District without further approval of this Drainage Board, *provided that* the maximum interest rate on the Bonds shall not exceed 6.00% per annum, the Bonds shall be sold at a price not less than 98% of the par value of the Bonds, and the Underwriter's discount shall not exceed 0.70% of the principal amount of the Bonds.

The Authorized Officer may, if necessary, execute a sale order evidencing the final terms of the Bonds, and make any of the determinations, covenants and elections authorized by this Resolution, provided that the final terms of the Bonds shall be within the parameters set forth in this Resolution.

13. Tax Covenant. The District shall not invest, reinvest or accumulate any moneys deemed to be proceeds of the Bonds pursuant to the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"), in such a manner as to cause the Bonds to be "arbitrage bonds" within the meaning of the Internal Revenue Code and such applicable regulations; the District hereby covenants that, to the extent permitted by law, it will take all actions within its control and that it shall not fail to take any action as may be necessary to maintain the exemption of interest on the Bonds from gross income for federal income tax purposes, including but not limited to, actions relating to the rebate of arbitrage earnings, if applicable, and the expenditure and investment of Bond proceeds and moneys deemed to be proceeds of the Bonds, all as more fully set forth in the Non-Arbitrage and Tax Compliance Certificate to be delivered by the District with the Bonds.

14. Further Actions. The officers, administrators, agents and attorneys of the District are authorized and directed to execute and deliver all other agreements, documents and certificates and to take all other actions necessary to complete the issuance and delivery of the Bonds in accordance with this Resolution. The officers, administrators, agents and attorneys of the District are authorized and directed to pay costs of issuance including Bond Counsel fees, Municipal Advisor fees, rating agency fees, Transfer Agent fees, escrow agent fees, verification agent fees, costs of printing the preliminary and official statements, purchase of securities for the purpose of funding the Escrow, and any other costs necessary to accomplish sale and delivery of the Bonds.

15. Municipal Advisor. Bendzinski & Co., Municipal Finance Advisors, is retained to serve the District as its registered municipal advisor for the Bonds (the "Municipal Advisor").

16. Bond Counsel. Miller, Canfield, Paddock and Stone, P.L.C. is hereby retained to serve as bond counsel for the Bonds, notwithstanding the periodic representation by Miller, Canfield, Paddock and Stone, P.L.C., in unrelated matters of potential parties to the issuance of the Bonds, including the Underwriter.

17. Severability. If any section, paragraph, clause or provision of this order shall be held invalid, the invalidity of such paragraph, section, clause or provision shall not affect any of the other provisions of this order. Section headings are inserted for convenience of reference only and shall not be considered to be a part of this order.

18. Rescission. All resolutions and orders and parts of resolutions and orders insofar as they conflict with the provisions of this order are hereby rescinded.

[Remainder of Page Intentionally Left Blank]

19. Effective Date. This order shall become effective immediately.

RESOLUTION DECLARED ADOPTED

Candice S. Miller, Chairperson
Drainage Board

I hereby certify that the foregoing is a true and complete copy of a resolution adopted by the Drainage Board for Macomb Interceptor Drain Drainage District, County of Macomb, Michigan, at a meeting held on October 21, 2019, and that said meeting was conducted and public notice of said meeting was given pursuant to and in full compliance with the Open Meetings Act, being Act 267, Public Acts of Michigan, 1976, and that the minutes of said meeting were kept and will be or have been made available as required by said Act.

Candice S. Miller, Chairperson
Drainage Board

34640680.1\054935-00021



To: Macomb Interceptor Drain Drainage District Board Members

CC: FILE

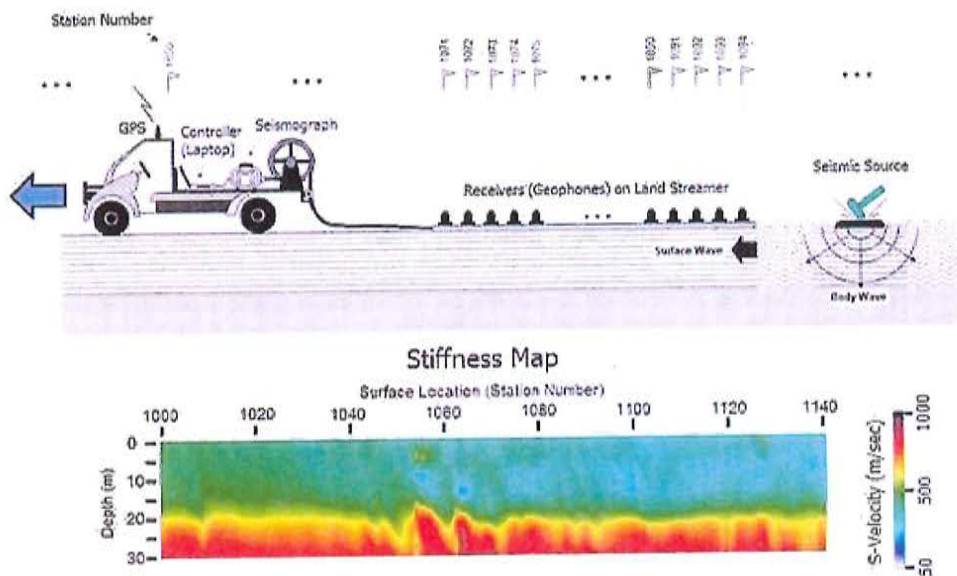
From: Vincent Astorino, Operations & Flow Manager

Date: October 12, 2019

Subject: Change Order #1 Approval Request for Segment 5 Lining MASW Services – FK Engineering

In 2017 as part of the Macomb Interceptor Drain Drainage District (MIDDD) SAW grant, a Multi-Channel Analysis of Surface Waves (MASW) analysis was performed through the Romeo Arm. MASW is a process that is used to help determine the strength of soils under the ground surface. Below in Figure 1 is an illustration of how this process is performed.

Figure 1 - Overview of MASW Process



The MASW process is a useful tool to help the MCPWO Engineering staff and FK Engineering (FKE) properly plan to strengthen weak areas around the outside of the interceptor before structural lining is placed within the pipe as part of the Segment 5 lining. This process is also being recommended on Segments 3 & 4 to verify that no changes have occurred since the last test. These segments are slated for rehab several years from now so it is important to monitor the conditions around this interceptor.

FKE procured engineering proposals from two firms for this work. The first was from Olson Engineering in the amount of \$104,279. During discussions with Olson, FKE found out that all of the staff who performed the 2017 MASW test left Olson and went to a new company named Collier Geophysics. Due to this FKE then

OFFICE LOCATION: 21777 Dunham Road, Clinton Township, Michigan 48036 • Phone: 586-469-5325 • Fax: 586-469-5933
ENGINEERING • Phone: 586-469-5910 • Fax: 586-469-7693 ♦ **SOIL EROSION** • Phone: 586-469-5327 • Fax 586-307-8264

procured a quote from Collier which was in the amount of \$117,951.50. Since this is a very sensitive test the MCPWO and FKE wanted to retain the services of the same firm who performed the 2017 testing so that all of the methods for testing were the exact same. Therefore the recommendation will be to move forward with Collier Geophysics for this work.

With this testing there will be two additional components which consist of FKE field observations and traffic control. The majority of the traffic control will be supported by MCPWO operations staff along 15 Mile and Garfield. There are two areas which will require significant traffic control though. The Romeo Arm interceptor curves the intersection of 15 Mile and Garfield and crosses three intersections on Garfield which include Moravian, Metropolitan Parkway, and Millar. These will need to be performed overnight in minimum traffic conditions and will require assistance from a traffic control provider. All traffic control will be coordinated with Macomb County Department of Roads and any permits required will be acquired. For these two tasks \$22,048.50 has been recommended to be added to the total NTE amount.

A draft copy of the change order and MASW quote comparison memo from FKE have been attached for reference. On behalf of the MCPWO Engineering staff, we are recommending the approval Change Order #1 which includes the services of Collier Geophysics, FKE staff, and traffic control allowances in the amount of \$140,000.

Attachments: Draft Change Order No. 1
MASW Quote Comparison Memo – FK Engineering 9-27-19

ROMEO ARM INTERCEPTOR – SEGMENT 5 MULTI-CHANNEL ANALYSIS OF SURFACE WAVES

**Macomb County Public Works
Commissioner's Office**

**Quotes and Scopes of
Proposed MASW Investigation**

September 27, 2019



Excellence in
Infrastructure and
Underground
Engineering

FK Engineering Associates

Project Number: 18-148

Memorandum

TO: Mr. Vincent Astorino - MCPWO
Mr. Stephen Downing - MCPWO

DATE: 9-27-2019
FKE PROJ. NO.: 18-148

FROM: Zachary Carr, P.E.

SUBJECT: Multichannel Analysis of Surface Waves Investigation Quote/Scope of Work Comparison
PCI-12A (Romeo Arm Interceptor), Sterling Heights, MI

This memorandum presents a summary of the quotes and scope of work provided by Olson Engineering and Collier Geophysics for the Multichannel Analysis of Surface Waves (MASW) investigation along the PCI-12A interceptor proposed to begin work in the fall of 2019. It also includes the work provided by Olson Engineering during the MASW investigation in 2017. Quotes are attached for reference.

Olson Engineering

The following is a summary of the quote and proposed scope of work submitted by Olson Engineering for the 2019 Multichannel Analysis of Surface Waves investigation along the PCI-12A interceptor:

- Total project cost: 104,279.00 Lump Sum. If broken into two tasks the total project cost would be \$129,952.00 (Task 1 - \$54,257.00 and Task 2 - \$75,695.00)
- Providing a three-day field investigation this summer (fall 2019).
- Providing a MASW Collection to a depth of 100 feet, for the length requested (22,400 linear feet).
- Using an array consisting of 24 geophones, spaced at five-foot intervals.
- Using an accelerated weight drop (52 lbs. weight) onto a steel plate attached to the back of an ATV as seismic energy.
- Not providing traffic control however, it will be needed because all of the data collection will be in the roadway, blocking one lane of traffic.
- Providing data collection of approximately 2,000 feet per day, resulting in 12 days total onsite.
- Results will consist of 2D profiles with shear wave velocity to a depth of about 100 feet, creating models of the subsurface at the site and their interpretation of the site's bedrock depth and overburden variations.

Collier Geophysics

The following is a summary of the quote and proposed scope of work submitted by Collier

Geophysics for the 2019 Multichannel Analysis of Surface Waves investigation along the PCI-12A interceptor:

- Total project cost: 117,951.50, (Task 1 - \$39,357.20 and Task 2 - \$69,626.75 excluding Mob/demob).
- Providing a MASW collection to a depth of 100 feet, for the length requested (22,400 linear feet).
- Using an array consisting of 48 geophones (the array is “live” to monitor the energy), spaced at ten-foot intervals.
- Using ambient noise as seismic energy (vehicular traffic).
- Not providing traffic control. The majority of the data collection will be in the right-of-way (not on the roadway); however, some sections will need traffic control (with signage) to cross roadways and intersections. (May also need alternative hours of operation for the field crew)
- The process requires three persons; they will provide two and FKE will have to provide one. The person from FKE shall be healthy and dedicated to working with the Collier crew for all hours (10-hour field days) with tailgate safety briefings.
- Providing data collection of approximately 1,500-1,800 feet per day resulting in 14 days total onsite.
- Results will consist of 2D shear-wave velocity vertical cross-sections with drill hole data plotted as well (if provided to Collier). 2017 sections will be computationally compared to the 2019 MASW results and provided in 2D vertical sections on the final report.

2017 MASW Report Summary

The following is a summary of the completed scope of work performed by Olson Engineering in 2017 for the Multichannel Analysis of Surface Waves investigation along the PCI-12A Interceptor and surrounding areas:

- Total project cost: Unknown.
- MASW collection at a depth of greater than 80 feet for a total length of 26,000 feet.
- Used an array with 48 geophones, spaced at ten-foot intervals, collecting data shots at every third geophone (30ft shot spacing).
- Used a sledgehammer impacting a plastic plate as seismic energy.
- Conducted investigation alongside roadways with heavy traffic.
- Provided graphs with the 2D shear-wave velocity laterally and vertically beneath the array mapped out.

Future Evaluations

The above information will aid us in completing the following tasks:

- Understanding the scope of work that is proposed in the bids received to confirm that the intent of the project is being met. This will help FKE give further recommendations to the Macomb County Public Works Office (MCPWO).



Corporate Office:
12401 W. 49th Avenue
Wheat Ridge, CO 80033 USA
phone: 303.423.1212
fax: 303.423.6071

September 12, 2019

FK Engineering Associates
30425 Stephenson Hwy.
Madison Heights, MI 48071

Attn: Zachary Carr, P.E.
Phone: 313-304-6737
Email: zcarr@fkengineering.com

RE: MASW Land Streamer Surveys in Fraser, MI
Olson Proposal No. P2019183.3GP

Olson Engineering is pleased to submit this proposal for the use multi-channel analysis of surface waves (MASW) to measure the depth to bedrock at a multi-occupant facility in Denver, Colorado.

PROJECT BACKGROUND

The McComb County Public Works Office (MCPWO) in Fraser, MI is interested in a seismic investigation of the Romeo Arm of the PCI-12A interceptor. Olson performed an extensive MASW study along their PCI-12A interceptor around 2017. There have been some sinkholes in this area, particularly near Hayes Road. This work would be two long continuous profiles that are looking for any anomalies. The interceptor is approximately 50 to 60 ft deep, while bedrock is approximately 100 ft deep. The MCPWO is looking for zones of loose or soft soils. The work would be in the fall of 2019.

GEOPHYSICAL INVESTIGATION

We propose that we collect MASW survey lines at the site on the road, which will require one lane of traffic to be blocked during collection. The landstreamer array consists of 24 geophones mounted on steel plates that are designed to slide across pavement and other smooth surfaces. The geophones are spaced 5 ft apart and are connected together with webbing. The array will be 115 ft long and pulled by a utility ATV, with between 5 ft and 30 ft separating the ATV and landstreamer array. The exact distance between the ATV and landstreamer will be determined in the field to optimize data resolution for this site. The accelerated weight drop will be mounted on the back of the ATV to provide a seismic source for the survey. Because the depth to bedrock could exceed 80 ft we believe it is necessary to use an accelerated weight drop to insure that we can sample depths well beyond 80 ft. The accelerated weight drop will accelerate a 52 lbs weight into a steel plate placed on the ground. This system does not typically damage pavement, however we will use plastic or wooden buffer plates to prevent damage if necessary. With this survey design we expect to be able to survey down to 100 ft.

There are two sections to this project, Task 1 which runs from CS-6 to RA-MH-7 (approximately 8300 ft) and Task 2 which runs from RA-MH-7 to RA-MH-016 (approximately 14,100 ft). The total length is approximately 22,400 ft and an average collection rate is approximately 2000 ft per day which would require approximately 12 days of data collection. A normal data processing rate is 2 days of processing time for each day of data collection. The results will be 2D profiles of shearwave velocity to a depth of about 100 ft. These profiles will be used to interpret the depth of the bedrock across the site and variations in the overburden.

The geophysical data will be briefly analyzed during field testing to ensure data quality. The data will be fully analyzed at our office and a report prepared with the final detailed results. The final MASW results will include models of the shear wave velocity of the subsurface at the site and our interpretation of the sites bedrock depth and overburden variations.

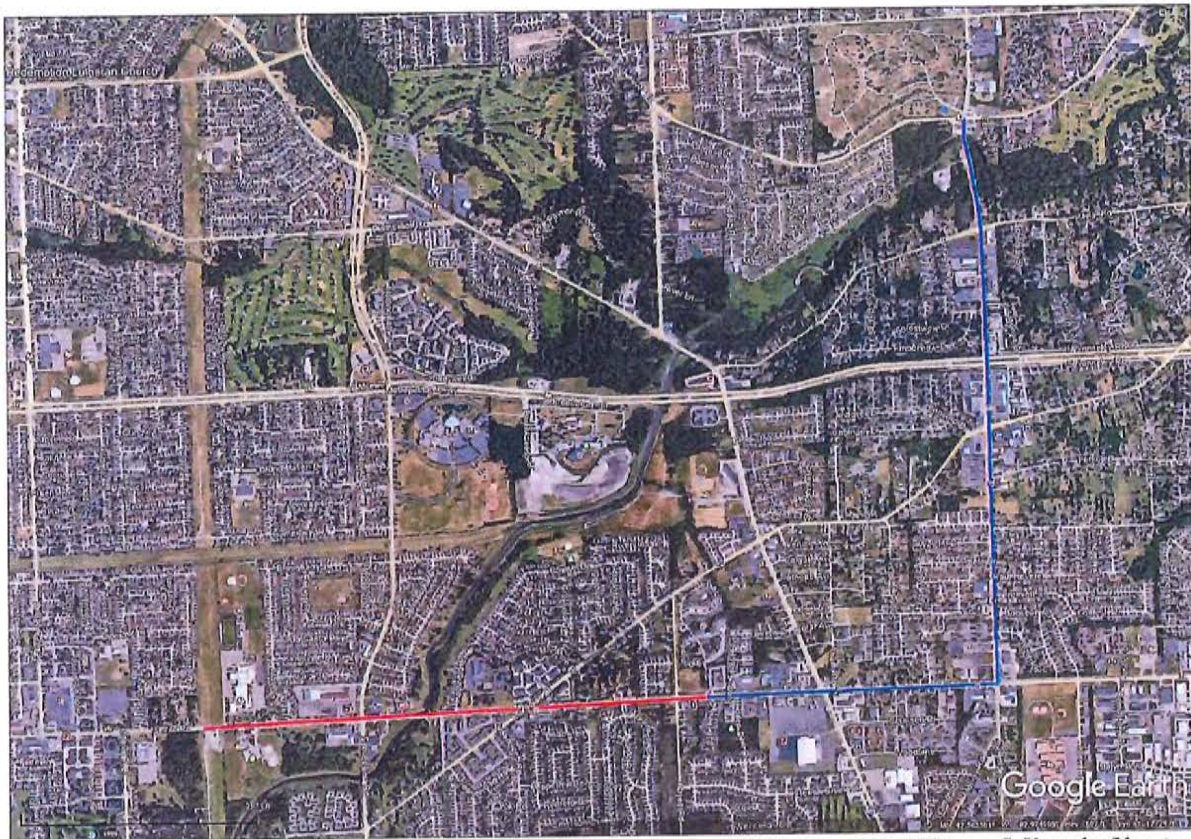


Figure 1: Proposed locations for the land streamer MASW surveys. The red line indicates Task 1, which is approximately 8300 linear feet. The blue line indicates Task 2, which is approximately 14,100 linear feet.

PROJECT MANAGEMENT AND WORK SCHEDULE

Olson Engineering personnel are available to schedule this investigation which we understand will begin this summer. We estimate this investigation will be completed in 3 field days. The project would be performed by Olson Engineering personnel who are experienced in


field multi-channel analysis of surface wave surveys.

FIELD SUPPORT REQUIREMENTS

We understand that your firm will provide access to the test sites. We also request that you provide traffic control directing vehicles around the landstreamer. We will be responsible for all MASW equipment needed at the site.

GEOPHYSICAL INVESTIGATION COSTS

This project will be billed on a **lump sum basis of \$104,279.00** for MASW surveys as detailed in the table below. This amount is for a single deployment to collect all of the data. If the data collection is broken up into two deployments, the Phase 1 data collection and processing effort would be \$54,257.00 while the Phase 2 deployment and processing effort would be \$75,695.00. This would increase the total cost from \$104,279.00 to \$129,952.00. This fee includes mobilization of personnel and equipment for 12 days of field testing, data analysis, QA/QC review and report preparation. Please note our contract and 5% discount terms for prompt payment detailed below.

Proposed Budget	FK Engineering Associates Fraser, MI	09/11/19	OE Proposal Number: P2019183.1GP
Project Management	\$2,272.00	COMMENTS: Hereford Wind Project planning, contracting, crew management, and data/report QC 2-person crew (incl's MASW equip, and staff) Estimated 12 days on-site Completed at Olson office after data collection Letter report, includes internal review Lump sum bid	
Mobilization/Demobilization	\$14,183.00		
Data Collection	\$58,680.00		
Data Processing	\$27,072.00		
Report Generation	\$2,072.00		
Project Total	\$104,279.00		
Scope of work: Acquire, process, interpret & prepare interpretative report for the MASW surveys over the interceptor at a site in Fraser, MI.			
HSE: Level D PPE. No site-specific health hazards have been identified			

CONTRACT AND PAYMENT TERMS

Background Information Provision

The contractual client for this proposed project agrees to provide all potentially useful and applicable project background information to Olson Engineering, Inc. (OLSON) that relates to our proposed technical work scope (e.g., project design drawings, as-built information, materials test results, previous engineering investigation reports, history of construction, damage, repairs, etc.). Olson Engineering, Inc. requires this information to effectively plan, execute field work, analyze data and report our investigation findings, conclusions and recommendations. The client further agrees to provide any pertinent information that is developed after submittal of our project report to OLSON in order that we may revise and update our report findings, conclusions and recommendations as appropriate based on the newly provided information. The client for this project agrees that we will not be held technically or financially liable should pertinent project information be subsequently developed and provided to us that adversely impacts our investigation report findings, conclusions and recommendations.

Tax Pass-through Provision

Charges for city, state, or other local taxes which are assessed on us for performing this investigation at this location will be billed at cost (if applicable) in addition to the invoiced project costs.

Payment Terms and Prompt Payment Discount Provisions

Invoices will be submitted on a per trip basis upon completion and submittal of the project report (draft or final report). For projects of longer than 1 month in duration, progress payment invoices will be prepared and billed monthly on a percentage completion basis based on the contractual scope of work. **Standard Payment terms are net 30 days from the date of invoice with a service charge of 1% per month on unpaid balance after 90 days from the date of invoice.** Prompt payment discount terms are offered as follows on each project invoice.

- **5% DISCOUNT** on the total investigation costs will be applied **IF** payment is received within **15 days from the date of invoice.**

Under no circumstances are we to receive full payment later than 90 days from the date of an invoice unless otherwise agreed to. **Any payments not made within 90 days will be subject to collection procedures.** We maintain general business, auto, and professional liability insurance as well as workman's compensation and will provide certificates upon request.

Conduct and Authorization of Work

The investigation will be performed in accordance with our attached general work conditions. No work is to commence without a signed contract transmitted by mail, fax or email to our office with an original signed contract to ultimately be sent to our office.

CLOSURE

We appreciate the opportunity to submit this proposal for your review and look forward to working with you on this project. If this proposal is accepted, please sign and return a copy of this proposal to us or send us a contract referencing this proposal. Please call if you have any questions. This quote is valid for 90 days from this date.

Respectfully submitted,
Olson Engineering, Inc.



Ryan E. North, PhD, RPG, GISP
Principal Geophysicist

(1 copy e-mailed)

AGREED TO THIS _____ DAY OF _____, 2019


SIGNED BY _____

NAME AND TITLE _____

ORGANIZATION _____

Geophysical Project Cost Estimate

Project Name:	McComb County Romeo Arm Interceptor
Proposal Number:	E2019162.1
Prepared By:	Phil Sirles
Proposal Date:	9/15/2019
Estimate Type:	Lump Sum
Completed For:	Zach Carr
Client Phone Number	248.817.2946
Via Email	zcarr@fkengineering.com
Client:	FK Engineering Associates
Project Location:	Fraser, MI
Project Description:	MASW Survey



COLLIER
GEOPHYSICS

7711 W. 6th Ave., Suite G
Lakewood, CO 80214
Office: 720.487.9200
www.colliergeophysics.com
SDVOSB

PROJECT PRICING		
Line Item	Estimated Cost	Comment
Task 1. Planning and Mobilization	\$ 9,502.50	2-Person crew (staff & equip.), FKE to assign a full-time field tech to the crew (for a 3-man crew)
Task 2. Data Collection	\$ 59,939.00	Two long seismic lines: Task 1 = 8300' & Task 2 = 14,100' (total of 22,400 feet)
Task 3. Data Processing & Reporting	\$ 48,510.00	2D MASW sections, site conditions, field parameters, interpretation of Task 1 and 2 results; and, comparison of 2019 survey with 2017 survey results (i.e., difference of the Vs sections).
Total:	\$ 117,951.50	Task 1 total is: \$39,357.20; and Task 2 total is: \$69,626.75 (excluding crew mob/demob)

Scope of Work:

At the request of FK Engineering Associates (client), Collier proposes to conduct a seismic survey as part of the on-going McComb County (MC) Interceptor geotechnical investigation, located in Fraser, MI. This geophysical investigation is being conducted as a follow-up to the 2017 seismic investigation performed over the same reaches for direct, computational comparison of the results, and to identify problem areas (if present). The objective is to measure the shear-wave velocity (Vs) to depths of at least 100 feet below ground surface using the Multi-channel Analysis of Surface Waves (MASW) method to determine the presence of soft soil conditions overlying the MC Interceptor pipe along two reaches. A site map was provided with the RFP, identifying the area of investigation along the MC Romeo Arm Interceptor (PCI-12A) identifying two tasks (see following page):

- > Task 1 is identified as the stretch along 15-Mile Road, from CS-6 to the 2016 sinkhole (i.e., manhole RA-MH-7); that is, approximately 8,300 line feet.
- > Task 2 is identified as the remaining stretch of the Romeo Arm from manholes RA-MH-7 to RA-MH-018; approximately 14,100 line feet.

Exact survey design, position of the MASW line, and specifications to be determined in cooperation with the client. However, based on the previous successful MASW survey approach to the Romeo Arm Interceptor field work (conducted in 2017 by the same geophysical staff/personnel) the seismic data will be acquired with a 10-foot geophone spacing using a 48-channel set-up in roll-along fashion for the entire length of the line. The entire 48-channel array will be 'live' to monitor passive seismic energy produced by the ambient noise at this site (e.g., vehicular traffic and other nearby activities). Final positions of the line (and each geophone location) will be mapped using a GeoXplorer GPS with sub-foot horizontal accuracy.

Detailed site maps with information and position of any geotechnical borings will be provided with the geologic logs. Access for crew will be coordinated by client prior to mobilization. Collier is not responsible for traffic controls, although the majority of the data collection is in the right-of-way, not on the roadways; however, certain stretches will require traffic controls (including signage) to cross roadway and intersections (which may require alternative hours of operation for the field crew). PPE is Level D, with high-visibility clothing, and no significant site safety hazards have been provided to Collier. FKE is to provide a third person to augment the seismic crew. The data acquisition crew requires 3 people. Collier is providing 2 (both capable of computer/equipment operation). All three will be planting geophones, moving the line, and maintaining safe working conditions for all. The staff provided by FKE is to be healthy and dedicated to working with the Collier crew for all hours of operation; that is, expected to be 10-hour field days (including tailgate safety briefings).

Seismic results will be provided as 2D Vs vertical cross-sections with drill hole data plotted on the sections (if provided to Collier). Additionally, the 2017 Vs sections will be computationally compared to the 2019 MASW results, and provided in 2D vertical sections in the final report.

Key Assumptions and Limitations

- Estimated 14-days on-site with 3-person crew (i.e., 1500-1800 feet collected per day)
- Estimated 5-days on-site for Task 1; and, estimated 9 days on-site for Task 2 (i.e., 1500-1800 feet collected per day)
- Field work can be conducted 7-days a week - site conditions or client-related standby will be invoiced at \$3,050.00 (60% for labor hours & 100% of ODC)
- Access provided to the site by the client - cost for required traffic control is not included (to be provided by FKE or MC)
- Each of the two lines will be extended 115 feet at each end, to achieve full below ground coverage of requested distance(s)
- Work areas to be safe & navigable for staff & equipment to the extend possible (including signage)
- Work area anticipated to be along the right-of-way along the roadways, relatively flat, no grubbing of heavy vegetation
- Work cannot be completed during inclement weather
- Collection of seismic data will not be affected by on-going construction or drilling operations; however, safe passage for the crew and equipment is required
- Actual field and instrument parameters may be altered on-site by the field geophysicist to optimize the data quality and overall field work

Notice to Proceed

This notice to proceed authorizes Collier Geophysics, LLC. to complete the scope of work at the estimated cost presented above and must be completed and signed prior to the start and performance of any work. Budget is valid for 90-days from date of proposal.

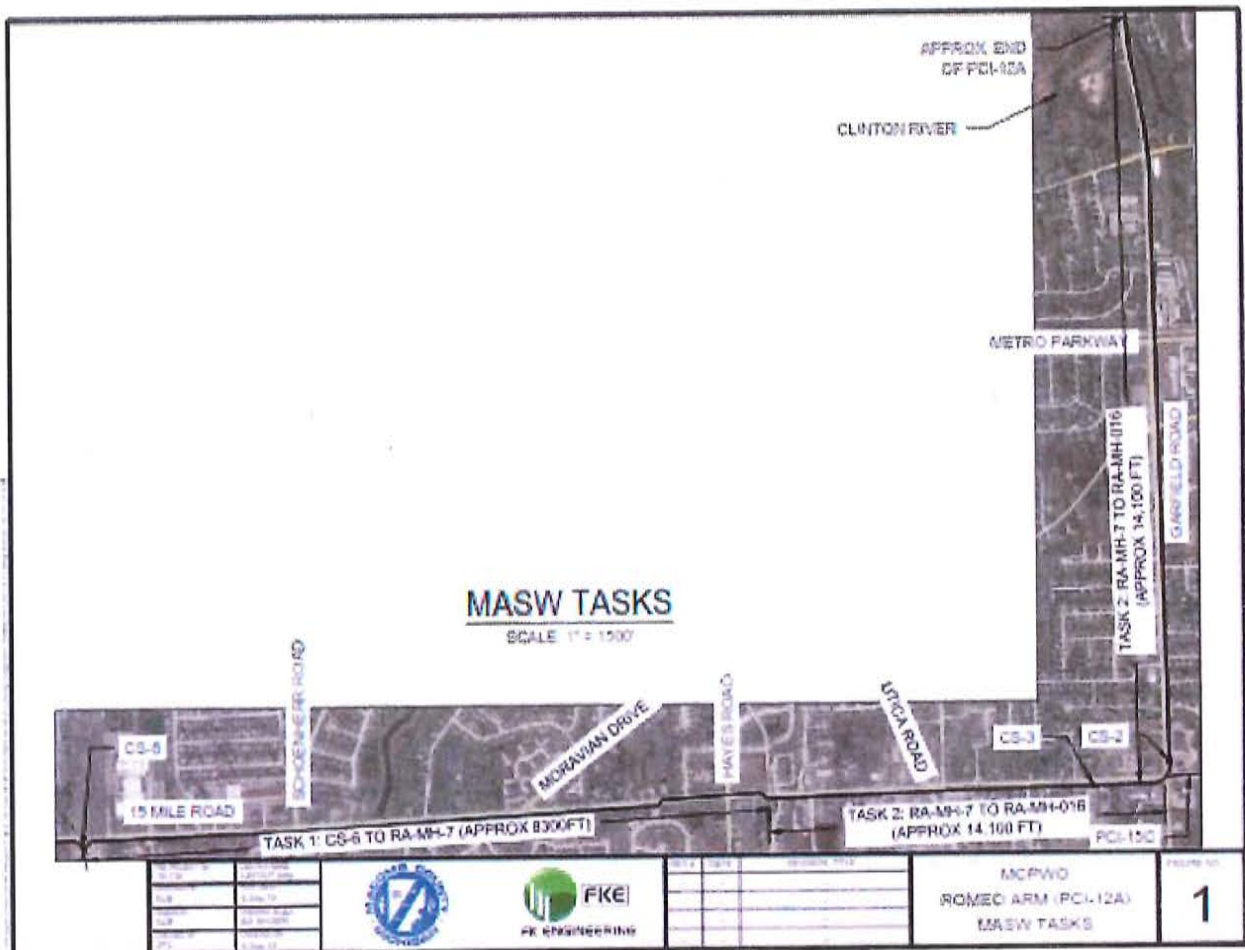
Client: FK Engineering Associates

Authorized by: _____
(Name and Title)

Signature: _____

Date: _____

Conceptual Line Layout for Task 1 and Task 2 MASW field investigations (*Black lines*). Plan map provided to Collier by FK Engineering Associates.



Change Order No.

1

Date of Issuance: 10/21/19
Owner: Macomb Interceptor Drain
Drainage District
Engineer: FK Engineering

Effective Date: 10/22/19
Owner's Contract No.: WWS-2019-013
Engineer Contract No.: N/A
Contract Name: Segment 5 Lining

The Contract is modified as follows upon execution of this Change Order:

Add \$140,000 to the existing contract to provide a MASW inspection and a report of the findings for the Romeo Arm.

The original Contract Sum was:	<u>\$ 498,881.50</u>
The net change from previously approved Change Orders No. to No:	<u>\$ 0</u>
The Contract Sum prior to this Change Order:	<u>\$ 498,881.50</u>
The Contract Sum prior to this Change Order will be increased by:	<u>\$ 140,000.00</u>
The new Contract Sum, including this Change Order, will be:	<u>\$ 638,881.50</u>
The Contract Time will be unchanged by:	0 (days)

The date of Substantial Completion as of the date of this Change Order, therefore, is: N/A

ACCEPTED:

ACCEPTED:

By: _____
Owner (Authorized Signature)

By: _____
Engineer (Authorized Signature)

Title _____

Title _____

Date _____

Date _____



Candice S. Miller

Public Works Commissioner
Macomb County

From: Macomb County Public Works Office
To: Macomb Interceptor Drain Drainage District Drain Board
Copy: File
Date: 10/09/2019
RE: Proposal Evaluation Project Award Recommendation
Sanitary Interceptor Inspection Program

This is a contract for engineering services and contractor oversight for the sanitary interceptor inspection program. The contract is broken down to the main tasks of; 1). creating contract documents for contractor bidding, 2). contract bidding administration, and 3). inspection engineering and contractor oversight. This project will be distributed over each of the following drain districts:

- Macomb Interceptor Drain Drainage District (MIDDD)
- North Gratiot Interceptor Drain Drainage District (NGIDDD)
- North Gratiot Interceptor – Lenox Local Drain Drainage District (NGILLDDDD)
- Southeast Macomb County Wastewater Disposal System (SEMCWWDS)
- Martin Sanitary Diversion Drainage District (MSDDDD)

The Request for Proposals (RFP) were requested from three (3) pre-qualified firms; Fishbeck, Thompson, Carr, & Huber Inc. (FTC&H), Anderson, Eckstein, Westrick, Inc. (AEW), and Hubbell, Roth, & Clark, Inc. (HRC). Proposals were received from each firm in October 2019. Since each firm was pre-qualified, evaluations were strictly performed on a cost basis. A summary of the total cost by firm is presented on the next page.

Macomb County Public Works Office
Request for Proposal Evaluation Summary



Project Description: Sewer Inspection Program
Engineering & Inspection Oversight

Task		FTC&H		AEW		HRC	
1. Contract Documents	MIDDD	\$	18,615.48	\$	54,781.94	\$	20,162.22
	NGIDDD	\$	4,051.60	\$	11,923.13	\$	32,820.72
	NGILLDDD	\$	6,351.16	\$	18,690.31	\$	42,464.64
	SEMCWWDS	\$	5,584.64	\$	16,434.58	\$	41,936.66
	MSDDD	\$	197.11	\$	580.04	\$	8,325.76
1. Contract Documents:		\$	34,800.00	\$	102,410.00	\$	145,710.00
2. Bidding	MIDDD	\$	4,760.86	\$	3,792.37	\$	7,200.13
	NGIDDD	\$	1,036.19	\$	825.40	\$	1,567.09
	NGILLDDD	\$	1,624.29	\$	1,293.87	\$	2,456.51
	SEMCWWDS	\$	1,428.26	\$	1,137.71	\$	2,160.04
	MSDDD	\$	50.41	\$	40.15	\$	76.24
2. Bidding:		\$	8,900	\$	7,090	\$	13,460.00
3. Inspection	MIDDD	\$	88,300	\$	101,809.57	\$	133,734.96
4. Inspection	NGIDDD	\$	23,700	\$	22,158.55	\$	34,483.20
5. Inspection	NGILLDDD	\$	30,800	\$	34,735.03	\$	52,726.63
6. Inspection	SEMCWWDS	\$	30,100	\$	30,542.87	\$	50,505.49
7. Inspection	MSDDD	\$	13,200	\$	1,077.98	\$	13,529.72
3 - 7. Inspection:		\$	186,100	\$	190,324	\$	284,980.00
Total:		\$	229,800.00	\$	299,823.50	\$	444,150.00

The Evaluation Committee recommends that **Fishbeck, Thompson, Carr & Huber**, the lowest bidder, be named as the consultant for the above referenced Project. Provided in the attached is a breakdown of cost by firm for each task and drainage district.

On behalf of the Board please indicate your approval of this recommendation by signing below.
Thank you for consideration of this recommendation.

Vince Astorino
Operations & Flow Manager
MCPWO Engineering-Wastewater Services

Approved: _____

Not Approved: _____

Hold: _____

Authorized Board Member Signature

Authorized Board Member Name (print)

October 7, 2019

Mr. Vincent Astorino
Operations and Flow Manager
Macomb County Public Works Office
21777 Dunham Road
Clinton Township, Michigan 48036-1005

Re: Proposal for Professional Engineering Services
2020 Sanitary Interceptor Inspection Program
Project Management and Oversight

Dear Mr. Astorino:

Fishbeck is pleased to submit the following proposal for preparing contract documents and assisting in the bidding and oversight of the 2020 Sanitary Interceptor Inspection Program.

It is our understanding the Macomb County Public Works Office (MCPWO) is interested in inspecting the following interceptors in each of the sewer drainage districts:

1. Macomb Interceptor Drain Drainage District (MIDDD) – 85,000 feet (ft)
 - Romeo Arm and Garfield Interceptor (upstream of CS-3).
 - Lakeshore Interceptor.
 - Macomb Element.
 - Shelby Sanitary Connector.
 - Sterling Heights Arm.
2. North Gratiot Interceptor Drain Drainage District (NGIDDD) – 18,500 ft
 - North Gratiot Interceptor Phases 1, 3, 4, and 5.
3. North Gratiot Interceptor – Lenox Local Drain Drainage District (NGILLDDD) – 29,000 ft
 - Lenox Local Sewer.
4. Southeast Macomb County Wastewater Disposal System (SMCWWDS) – 25,500 ft
 - Northeast Relief Sewer.
5. Martin Sanitary Diversion Drainage District (MSDDD) – 900 ft
 - Martin Retention Treatment Basin (RTB) Influent and Effluent Boxes.
 - Martin RTB Dewatering Line.

Scope of Services

Based on discussions with your office, we propose the following tasks:

Task 1 – Contract Documents

Fishbeck will prepare a combined set of contract drawings and specifications to be issued for bid based on the following:

- The contract drawings will include plan sheets that indicate the location of the sewers and manholes relative to the road. Profiles of the sewers will not be developed for this project.



- Macomb County Geographic Information System (GIS) information will be used to indicate road rights-of-way (ROW) and easement locations.
- Tables will be provided as part of the contract drawings to show additional information such as manhole depth and pipe diameter and lengths. Locations with pipe restrictions will be indicated on the drawings.
- The MCPWO naming convention will be used to identify the assets.
- All drawings will be produced in AutoCAD 2017 in accordance with MCPWO standards.
- Specifications will be developed to provide contractors with the needed guidelines and requirements for cleaning and inspecting the sewers and manholes.
- All specifications will be in MasterFormat 2014 in accordance with MCPWO standards.
- We will prepare 30%, 60%, 90%, and 100% bidding documents for MCPWO review.
- We will prepare the necessary permit applications and assist MCPWO in securing the permits.

Our scope assumes the project will be issued as one package. Our scope also assumes we will have access to the AutoCAD plans from the previous inspection program to use as a starting point for this project.

Task 2 – Bidding

Fishbeck will assist MCPWO in bidding this project. Our scope will include:

- Preparing the Request for Proposal.
- Preparing for, attending, and summarizing a pre-proposal meeting if needed.
- Answering bidder questions and preparing addenda as necessary.
- Reviewing bids, verifying references, and providing bid award recommendation.
- Preparing for, conducting, and summarizing a pre-award meeting with apparent low bidder if needed.

Task 3 – MIDDD Inspection (85,000 ft)

Fishbeck will provide construction administration and inspection assistance during the Interceptor Inspection Phase. Our scope will include:

- Preparing for, conducting, and summarizing the pre-construction meeting.
- Shop drawing, maintenance of traffic (MOT), and flow control reviews.
- Reviewing Requests for Information.
- Reviewing Pay Applications.
- Regular construction progress meetings.
- Full-time construction observation and daily reporting.
- Contract close-out.
- Reviewing inspection videos and logs.
- Developing updated Probability of Failure, Consequence of Failure, and Business Risk Exposure scores.
- Incorporating results into MCPWO's NEXGEN database.

Task 4 – NGIIDD Inspection (18,500 ft)

Fishbeck will provide construction administration and inspection assistance during the Interceptor Inspection Phase. Our scope will include:

- Preparing for, conducting, and summarizing the pre-construction meeting.
- Shop drawing, MOT, and flow control reviews.
- Reviewing Requests for Information.
- Reviewing Pay Applications.



- Regular construction progress meetings.
- Full-time construction observation and daily reporting.
- Contract close-out.
- Reviewing inspection videos and logs.
- Developing updated Probability of Failure, Consequence of Failure, and Business Risk Exposure scores.
- Incorporating results into MCPWO's NEXGEN database.

Task 5 – NGILLDDD Inspection (29,000 ft)

Fishbeck will provide construction administration and inspection assistance during the Interceptor Inspection Phase. Our scope will include:

- Preparing for, conducting, and summarizing the pre-construction meeting.
- Shop drawing, MOT, and flow control reviews.
- Reviewing Requests for Information.
- Reviewing Pay Applications.
- Regular construction progress meetings.
- Full-time construction observation and daily reporting.
- Contract close-out.
- Reviewing inspection videos and logs.
- Developing updated Probability of Failure, Consequence of Failure, and Business Risk Exposure scores.
- Incorporating results into MCPWO's NEXGEN database.

Task 6 – SEMCWWDS Inspection (25,500 ft)

Fishbeck will provide construction administration and inspection assistance during the Interceptor Inspection Phase. Our scope will include:

- Preparing for, conducting, and summarizing the pre-construction meeting.
- Shop drawing, MOT, and flow control reviews
- Reviewing Requests for Information.
- Reviewing Pay Applications.
- Regular construction progress meetings.
- Full-time construction observation and daily reporting.
- Contract close-out.
- Reviewing inspection videos and logs.
- Developing updated Probability of Failure, Consequence of Failure, and Business Risk Exposure scores.
- Incorporating results into MCPWO's NEXGEN database.

Task 7 – MSDDD Inspection (900 ft)

Fishbeck will provide construction administration and inspection assistance during the Interceptor Inspection Phase. Our scope will include:

- Preparing for, conducting, and summarizing the pre-construction meeting.
- Shop drawing, MOT, and flow control reviews.
- Reviewing Requests for Information.
- Reviewing Pay Applications.
- Regular construction progress meetings.



Mr. Vincent Astorino
Page 4
October 7, 2019

- Full-time construction observation and daily reporting.
- Contract close-out.
- Reviewing inspection videos and logs.
- Developing updated Probability of Failure, Consequence of Failure, and Business Risk Exposure scores.
- Incorporating results into MCPWO's NEXGEN database.

Please note our fee does not include providing any recommendations for the rehabilitation of the sewers.

Professional Services Fees

We propose to complete the scope of services for the following fees:

Task 1 – Contract Documents	\$34,800	Lump Sum Not to Exceed
Task 2 – Bidding	\$8,900	Lump Sum Not to Exceed
Task 3 – MIDDD Inspection (85,000 ft)	\$88,300	Estimated – Time and Material
Task 4 – NGIDDD Inspection (18,500 ft)	\$23,700	Estimated – Time and Material
Task 5 – NGILLDDD Inspection (29,000 ft)	\$30,800	Estimated – Time and Material
Task 6 – SEMCWWDS Inspection (25,500 ft)	\$30,100	Estimated – Time and Material
Task 7 – MSDDD Inspection (900 ft)	\$13,200	Estimated – Time and Material

Thank you in advance for this opportunity and we look forward to helping you serve the residents of Macomb County. If you have any questions or require additional information, please contact me at 248.324.1228 or mesedki@ftch.com.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.

Maria E. Sedki, PE

nac
By email



Candice S. Miller
Public Works Commissioner
Macomb County

To: Macomb Interceptor Drain Drainage District Board Members

CC: FILE

From: Vincent Astorino, Operations & Flow Manager

Date: October 11, 2019

Subject: Change Order #2 Approval Request for As-Needed Engineering Services – FK Engineering

The 2017/2018 Macomb Interceptor Drain Drainage District (MIDDD) budget allocated \$450,000 for As-Needed Engineering Services. A competitive bid was issued on MITN for consultants to submit a Statement of Qualifications and Rate Schedule. The Board approved the recommendation to award contracts to six consultants, each with a budget of \$75,000.

In December, 2017 the MIDDD entered into an agreement with six consultants, each to provide services based on the District's needs and the Consultant's area of discipline. Since that time the consultants have successfully provided support for various engineering tasks, ranging from reports, studies, condition assessments and design.

The 2018/2019 MIDDD budget allocated \$450,000 for As-Needed Engineering Services. At that time there was not a need to request a change order because there was sufficient budget remaining in the original contracts with each of the six consultants. The funds have remained allocated as approved within the current budget until it was determined necessary to request a change order.

During the March 11, 2019 MIDDD board meeting change order #1 was approved to add \$75,000 to FKE's general as-needed contract. Since then funds have been used to inspect and develop plans for the Segment 5 grouting within the Romeo Arm. MCPWO engineers are also utilizing the construction oversight services of FKE while Doetsch is performing the grouting work in Segment 5.

Since this work has taken longer than anyone expected due to the unknowns of what the grout takes would be outside of the pipe we are getting low on funds for FKE. As part of the 19/20 MIDDD budget we allocated 3.85 million to segment 5 repairs. Since this is part of the initial repairs to segment 5 we would like to add change order #2 to the FKE contract in the amount of \$200,000 which should get through the grouting process.

A draft copy of the change order has been attached for reference. On behalf of the MCPWO Engineering staff please approve this request to allocate \$200,000 of the segment 5 repair budget as change order #2 to the FKE as-needed contract.

Attachments: Draft Change Order No. 2

Date of Issuance: 10/21/19
Owner: Macomb Interceptor Drain
Drainage District
Engineer: FK Engineering

Effective Date: 10/22/19
Owner's Contract No.: WWS-2018-002
Engineer Contract No.: 17-134
Contract Name: MIDD D As-Needed

The Contract is modified as follows upon execution of this Change Order:

Add \$200,000 to the existing contract to provide as-needed engineering services at the direction of MCPWO Engineering staff.

The original Contract Sum was:	<u>\$ 75,000.00</u>
The net change from previously approved Change Orders No. 0 to No: 1	<u>\$ 75,000.00</u>
The Contract Sum prior to this Change Order:	<u>\$ 150,000.00</u>
The Contract Sum prior to this Change Order will be increased by:	<u>\$ 200,000.00</u>
The new Contract Sum, including this Change Order, will be:	<u>\$ 350,000.00</u>
The Contract Time will be unchanged by:	0 (days)

The date of Substantial Completion as of the date of this Change Order, therefore, is: N/A

ACCEPTED:

ACCEPTED:

By: _____
Owner (Authorized Signature)

By: _____
Engineer (Authorized Signature)

Title _____

Title _____

Date _____

Date _____



Candice S. Miller
Public Works Commissioner
Macomb County

To: Macomb Interceptor Drain Drainage District Board Members

CC: FILE

From: Vincent Astorino, Operations & Flow Manager

Date: October 10, 2019

Subject: Change Order #1 Approval Request for As-Needed Engineering Services – Metco Services

The 2017/2018 MIDDD budget allocated \$450,000 for As-Needed Engineering Services. A competitive bid was issued on MITN for consultants to submit a Statement of Qualifications and Rate Schedule. The Board approved the recommendation to award contracts to six consultants, each with a budget of \$75,000.

In December, 2017 the MIDDD entered into an agreement with six consultants, each to provide services based on the District's needs and the Consultant's area of discipline. Since that time the consultants have successfully provided support for various engineering tasks, ranging from reports, studies, condition assessments and design.

The 2018/2019 MIDDD budget allocated \$450,000 for As-Needed Engineering Services. At that time there was not a need to request a change order because there was sufficient budget remaining in the original contracts with each of the six consultants. Earlier this year 3 of the 6 firms were allocated an additional \$75,000 each which brought this total down to \$225,000 remaining.

The MCPWO Engineering staff has determined a need to allocate additional funds to one of the As-Needed Engineering Consultants. The Consultants included in this request is Metco Services. The attached change order will allocate an additional \$75,000 to them.

The As-Needed Engineering Services contracts have allowed the MCPWO Engineering staff to quickly and efficiently obtain services for smaller tasks. Metco Services has also been actively providing flow control support on the OMIDDD control structures for MIDDD work as part of the Segment 5 grouting program.

A draft copy of the change orders have been attached for reference. On behalf of the MCPWO Engineering staff please approve this request to allocate \$75,000 to Metco Services as Change Order #1 on the MIDDD as-needed contract. This will leave a balance of \$150,000 remaining in additional as-needed funds available.

Attachments: Change Order No. 1 - Metco

Date of Issuance: 10/21/19
Owner: Macomb Interceptor Drain
Drainage District
Engineer: Metco Services

Effective Date: 10/22/19
Owner's Contract No.: WWS-2018-002
Engineer Contract No.: 1717
Contract Name: MIDDD As-Needed

The Contract is modified as follows upon execution of this Change Order:

Add \$75,000 to the existing contract to provide as-needed engineering services at the direction of MCPWO Engineering staff. Updated hourly rate and fee schedule is attached.

The original Contract Sum was:	<u>\$ 75,000.00</u>	
The net change from previously approved Change Orders No. to No:	<u>\$ 0</u>	
The Contract Sum prior to this Change Order:	<u>\$ 75,000.00</u>	
The Contract Sum prior to this Change Order will be increased by:	<u>\$ 75,000.00</u>	
The new Contract Sum, including this Change Order, will be:	<u>\$ 150,000.00</u>	
The Contract Time will be unchanged by:	0	(days)

The date of Substantial Completion as of the date of this Change Order, therefore, is: N/A

ACCEPTED:

ACCEPTED:

By: _____
Owner (Authorized Signature)

By: _____
Engineer (Authorized Signature)

Title _____

Title _____

Date _____

Date _____



Candice S. Miller

Public Works Commissioner
Macomb County

To: Macomb Interceptor Drain Drainage District Board Members

CC: FILE

From: Stephen Downing, Construction & Maintenance Manager

Date: October 17, 2019

Subject: Final Change Order Approval Request for MID Lining Project – Lanzo

The Macomb Interceptor Drain Drainage District (MIDDD) entered into an agreement with Lanzo Trenchless Technologies North (Contractor) for an original contract amount of \$2,203,890. The project mostly consisted of Cured In-Place Pipe (CIPP) Lining the Macomb Element and Sterling Heights Arm of the MIDDD system.

The Contractor encountered issues during CIPP Lining of a long portion of the project which required them to remove and replace several hundred feet of product. As a result, the Contractor did not meet the required substantial completion date.

Giffels Webster provided Engineering and Construction oversight for the Project. As a result of the delays Giffels Webster provided a recommended Liquidated Damages memo, which has been attached for reference. The recommendation to assess the Contractor \$85,250 in Liquidated Damages was based on 55 days passed Substantial Completion at \$1550 per day. The MIDDD currently holds \$59,144.70 of that amount in retainage which means the Contractor would be required the repay \$27,105.30. Our office agreed with the Engineer's recommendation a started pursuit of this amount.

On September 12, 2019 a verbal agreement was reached with the Contractor. The MIDDD will retain the \$59,144.70 that is currently being held in retainage and the Contractor will repay \$5,000. The MIDDD is collecting \$64,144.70 in Liquidated Damages. The MIDDD's legal counsel drafted an agreement which is attached for reference. Upon approval of this Board, Legal Counsel will facilitate the execution of the required documents and collect repayment of the \$5,000 from the Contractor.

Attachments: Settlement Agreement
Draft Change Order No. 5
Engineers Liquidated Damages Recommendation

OFFICE LOCATION: 21777 Dunham Road, Clinton Township, Michigan 48036 • Phone: 586-469-5325 • Fax: 586-469-5933

MAILING ADDRESS: P. O. Box 806, Mt. Clemens, Michigan 48046-0806

ENGINEERING • Phone: 586-469-5910 • Fax: 586-469-7693 ♦ **SOIL EROSION** • Phone: 586-469-5327 • Fax 586-307-8264

SETTLEMENT AGREEMENT

THIS SETTLEMENT AGREEMENT (“Agreement”) is effective as of October 11, 2019 (the “Effective Date”), notwithstanding the actual date of execution of this Agreement, by and between the **Macomb County Interceptor Drain Drainage District** (“MIDDD”), a corporate body politic, and **Lanzo Trenchless Technologies, Inc. – North** (“LANZO”) a Michigan corporation.

RECITALS

- A. The parties entered into a contract for Project No. 18214.02 with regard to the Macomb Element and Sterling Heights Arm Interceptor and Manhole Rehabilitation (the “Project”).
- B. MIDDD currently holds \$59,144.70 in retainage (the “Retainage”) for the Project.
- C. The parties disputed the final payment and close-out for the Project.
- D. The MIDDD and LANZO have agreed to a settlement to resolve any claims and liabilities they may have against each other related to the Project.

NOW, THEREFORE, in consideration of the mutual agreements set forth herein, and other good and valuable consideration, the adequacy of which is hereby acknowledged, the parties hereby agree as follows:

- (1) **MIDDD Retainage.** The parties agree that MIDDD shall keep the existing Retainage cited in paragraph B above for the Project as part of the settlement of this matter.
- (2) **LANZO Settlement Payment.** LANZO shall pay to MIDDD a settlement payment, the amount of \$5,000.00 (“Settlement Payment”) by business or cashier’s check within 3 days of execution of this Agreement.
- (3) **Cooperation Agreement by LANZO.** After payment by LANZO of the Settlement Payment, LANZO agrees to fully cooperate with MIDDD to provide any and all documents needed by MIDDD in order to completely close out the Project.
- (4) **Mutual Release.** Other than from the obligations set forth in this Agreement, LANZO, on behalf of itself and its successors, assigns, heirs, shareholders, members, officers, directors, principals and agents, hereby generally and unconditionally releases and forever discharges MIDDD, its subsidiaries and affiliates, and the successors, assigns, shareholders, members, officers, directors, principals, agents, attorneys and employees of any of the foregoing, from any and all claims, counterclaims, demands, causes of action, actions, debts, liabilities, damages, costs, and expenses, whether the liability be direct or indirect, liquidated or unliquidated, known or unknown, whether in law or in equity of whatever type or nature, to any and all claims related to the Project, the Project Documents, MIDDD’s administration, acts, or omissions related to the Project, MIDDD’s actions or omissions with respect to the Project, and any and all claims which could be raised in a lawsuit.

Subject to MIDD's receipt of the Settlement funds and LANZO's full cooperation in the final close out of the Project, MIDD hereby releases and forever discharges LANZO from any and all claims, counterclaims, demands, causes of action, actions, debts, liabilities, damages, costs, and expenses, arising out of or with respect to or in any way connected with the Project.

(5) **Entire Agreement; Amendment.** Each of the parties agrees that this Agreement constitutes and contains the entire agreement between the parties related to the transactions at issue and that no other agreements (whether written, oral, express or implied) have been made or entered into by the parties concerning the transactions at issue, and that the terms of this Agreement are contractual and not merely a recital. This Agreement may not be modified or amended in the absence of a writing signed by all parties.

(6) **Counterparts.** This Agreement may be executed in any number of counterparts, and each such counterpart will be deemed to be an original, but all such counterparts together shall constitute one and the same agreement, binding upon all the parties hereto.

(7) **Authority to Sign Agreement.** The parties each warrant and represent that they have the authority to enter into this Agreement, to execute same, and to be legally bound hereby.

(8) **Informed Execution.** The parties understand and agree that they have been given the opportunity to review this Agreement and discuss the terms thereof with their respective attorneys, and that they have executed same as their free act and deed, without duress.

(9) **Applicable Law.** This Agreement shall be governed by the laws of the State of Michigan, and if this Agreement becomes the subject of litigation between the parties, the parties hereby consent to jurisdiction in the applicable Michigan state or federal court.

(10) **Facsimile or Electronic Signatures.** Facsimile or electronic signatures shall have the same force and effect as if original.

(11) **Recitals.** The Recitals set forth above are incorporated into and made a part of this Agreement.

(12) **Representation of Parties.** The parties acknowledge that they have been represented by competent counsel of their own choice and that this Agreement has been the product of negotiation among them. The parties agree that this Agreement shall not be construed against any party on the basis of draftsmanship.

(13) **Waiver of Jury Trial.** LANZO knowingly, voluntarily, and intelligently waives its constitutional right to trial by jury with respect to any claim, dispute, conflict, or contention, if any, as may arise under this Agreement, and each party agrees that any litigation between the parties concerning this Agreement shall be heard by a court of competent jurisdiction sitting without a jury. LANZO CONFIRMS THAT IT HAS REVIEWED THE EFFECT OF THIS WAIVER OF JURY TRIAL WITH COMPETENT LEGAL COUNSEL OF ITS CHOICE PRIOR TO SIGNING THIS AGREEMENT, WITH FULL KNOWLEDGE THAT MIDD IS RELYING UPON THIS WAIVER IN AGREEING TO ENTER INTO THIS AGREEMENT.

(14) **No Duress.** LANZO ACKNOWLEDGES AND AGREES THAT IT HAS FULLY READ, COMPLETELY UNDERSTANDS, AND VOLUNTARILY, WITHOUT DURESS OR COERCION OF ANY KIND, ENTERS INTO AND EXECUTES THIS AGREEMENT, INCLUDING THE FOREGOING RELEASE AND WAIVER OF JURY TRIAL PROVISION.

The undersigned have signed this Settlement Agreement as of the Effective Date set forth above.

MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (“MIDDD”):

By:
Its:

LANZO TRENCHLESS TECHNOLOGIES, INC. – NORTH:

By:
Its:



October 17, 2019

Stephen Downing, Construction & Maintenance Manager
Macomb County Public Works Office
21777 Dunham Road
Clinton Township, MI 48036

RE: **Letter of Recommendation**
Change Order 5
MCPWO 09-0014.16.1 / SRF 5624-01

Project: ME and SHA Interceptor
and MH Rehabilitation
Project No: 18214.02

Mr. Downing,

The MIDDD and Lanzo have reached a Settlement Agreement effective October 11, 2019 to resolve the liquidated damages claim on this project. The agreement deducts the amount currently withheld in retainage (\$59,144.70). All other requirements of the Settlement Agreement shall be followed.

The Contract work is complete and requires a balancing change order to closeout all items. The unused quantity balancing results in a net decrease in the final contract amount of \$211,771.71. These pay items were not required for the installation and rehabilitation of the required contract work. See the breakdown in the Contract Modification breakdown for specific details.

In summary, this change order has a net decrease of \$270,916.41 to the previous contract cost of \$2,365,787.86 resulting in a new contract cost of \$2,094,871.45. This final contract amount is \$109,018.55 below the original contract amount of \$2,203,890.00, and \$382,830.55 under the original contract plus contingency of \$273,812.00.

Giffels Webster recommends this final change order be approved as part of project closeout. Should you have any questions, please do not hesitate to contact me at (248) 598-5178.

Sincerely,

A handwritten signature in black ink, appearing to read "Brent Kraft".

Brent Kraft, PE
Senior Engineer

Attached

1. Change Order #5
2. Contract Modification #5 – FieldManager Breakdown
3. Settlement Agreement (10/11/19)

MACOMB COUNTY PUBLIC WORKS COMMISSIONER
CANDICE S. MILLER

CHANGE ORDER FORM

Change Order No. 5

Owner: Macomb County Public Works Office
21777 Dunham Rd., Clinton Twp., MI 48036

Contractor: Lanzo Trenchless Technologies North
28137 Groesbeck Road, Roseville, MI 48066

Project: 18214.02 Macomb Element and Sterling Heights Arm Interceptor and Manhole Rehabilitation

The Contract is modified as follows upon execution of this Change Order:

	Date: <u>10/17/19</u>	
Previous Change Orders: <u>1-4</u>	Net Change from Previous Change Orders: <u>\$161,897.86</u>	
Contract Times Net Change to Substantial Completion this Change Order: _____	Contract Times Net Change to Final Completion this Change Order: _____	
Substantial Completion Date with All Approved Change Orders: <u>10/11/19</u>	Final Completion Date with All Approved Change Orders: <u>10/11/19</u>	

Description: This change order incorporates balancing remaining unused pay item quantities, resulting in a decrease in the Final Contract amount of \$211,771.71. As part of the Settlement Agreement effective October 11, 2019 between the Macomb County Interceptor Drain Drainage District (MIDDD) and Lanzo Trenchless Technologies, Inc. – North (Lanzo), the MIDDD is to keep the existing retainage of \$59,144.70. In order to properly balance the Contract, an item was added removing this total from the Contract, for a total net decrease of \$270,916.41. The Settlement Agreement between the MIDDD and Lanzo also includes a payment of \$5,000 from Lanzo to the MIDDD. This is not included in this contract; it is to be paid outside of this contract. The Settlement Agreement incorporates all potential Liquidated Damages associated with the project. The date the last major pay item was complete was May 26, 2017. The contract is to be officially extended to the date of the Settlement Agreement, which is October 11, 2019.

Attachments: Change Order 5 FieldManager Breakdown, Settlement Agreement

Contract Price Prior to this Change Order:	\$ 2,365,787.86
Net Change of This Change Order:	\$ -270,916.41
Contract Price Incorporating this Change Order:	\$ 2,094,871.45

Recommended by Engineer: Brent Kraft, PE Senior Engineer, Giffels Webster	Date
Accepted by Owner: Thomas R. Stockel Construction Engineer MCPWO	Date
Owner Authorization: Candice S. Miller Macomb County Public Works Commissioner	Date
Contractor's Acceptance (Authorized Signature): Lanzo Trenchless Technologies North	Date



Contract Modification

Contract: _18214.02, ME & SHA Interceptor and Manhole Rehabilitation

Cont. Mod. Number 5	Revision Number 2	Cont. Mod. Date 10/16/2019	Electronic File Created No	Net Change \$-270,916.41	Awarded Contract Amount \$2,203,890.00
Route		Managing Office Giffels Webster		District 0	Entered By Brent Kraft
Contract Location Macomb County					

Short Description

Change Order 5 - Balancing Quantities & Liquidated Damages Settlement

Description of Changes

Balancing unused quantities that results in a net decrease of \$211,771.71 to the Contract.

Also incorporating Settlement Agreement between MIDDD & Lanzo to not pay the contractor the amount that is currently retained, \$59,144.70. This contract modification will add an adjustment to the contract in that amount so in the final pay estimate it can be all complete.

With balancing quantities and adjustments the final contract amount results in \$2,094,871.45.

Increases / Decreases

Item Description	Item Code	Prop. Line	Proj. Line	Project	Catg.	Item Type	Quantity Change	Unit	Unit Price	Dollar Value
_ Bypass Pumping (As-Neede), 27"	8037001	0011	0055	18214.02	A	Original	-141.750	Ft	31.00000	\$-4,394.25
_ Bypass Pumping (As-Needed), 48"	8037001	0012	0060	18214.02	A	Original	-167.290	Ft	68.00000	\$-11,375.72
_ Deconstruct MH, Chimney, Remove and Replace	2087050	0016	0080	18214.02	B	Original	-1.000	Ea	1,925.00000	\$-1,925.00
_ Deconstruct MH, Cone, Remove and Replace	2087050	0017	0085	18214.02	B	Original	-1.000	Ea	3,080.00000	\$-3,080.00
_ Deconstruct MH, F&C, Remove and Replace	8167050	0015	0075	18214.02	B	Original	-1.000	Ea	2,255.00000	\$-2,255.00



Contract Modification

Increases / Decreases

Item Description	Item Code	Prop. Line	Proj. Line	Project	Catg.	Item Type	Quantity Change	Unit	Unit Price	Dollar Value
_ MH, 48" Dia, Prep for Liner	8037001	0024	0120	18214.02	C	Original	-4.500	Ft	7.00000	\$-31.50
_ MH, Precast, 48" Dia, Liner, Epoxy, Full Depth	8037001	0026	0130	18214.02	C	Original	-4.500	Ft	220.00000	\$-990.00
_ MH, Wall/Joint, Precast, Point/Patch/Seal	7187050	0021	0105	18214.02	C	Original	-1.000	Ea	220.00000	\$-220.00
_ Remove and Replace Asphalt Pavement	5017011	0013	0065	18214.02	B	Original	-100.000	Syd	242.00000	\$-24,200.00
_ Remove and Replace Concrete Pavement	6027011	0014	0070	18214.02	B	Original	-79.880	Syd	275.00000	\$-21,967.00
_ Remove Platform, Concrete	2087050	0018	0090	18214.02	B	Original	-2.000	Ea	4,400.00000	\$-8,800.00
_ San Swr, 27" Dia, Test-and-Seal Joints w Injectible Grout	8207050	0004	0020	18214.02	A	Original	-1.000	Ea	200.00000	\$-200.00
_ San Swr, 27", Final TV Investigation and Log	8037001	0009	0045	18214.02	A	Original	-141.750	Ft	4.00000	\$-567.00
_ San Swr, 27", Liner, CIPP-F	8037001	0006	0030	18214.02	A	Original	-141.750	Ft	142.00000	\$-20,128.50



Contract Modification

Increases / Decreases

Item Description	Item Code	Prop. Line	Proj. Line	Project	Catg.	Item Type	Quantity Change	Unit	Unit Price	Dollar Value
_ San Swr, 27", Prep, Clean, and Televis	2057001	0002	0010	18214.02	A	Original	-80.760	Ft	8.00000	\$-646.08
_ San Swr, 48" Dia, Large Dia Pipe Joint Sealing	8117050	0005	0025	18214.02	A	Original	-282.000	Ea	200.00000	\$-56,400.00
Reason: Contractor decided sealing wasn't necessary because there was no infiltration										
_ San Swr, 48", Final TV Investigation and Log	8037001	0010	0050	18214.02	A	Original	-153.310	Ft	4.00000	\$-613.24
_ San Swr, 48", Liner, 3'-CIPP-PR	7187050	0008	0040	18214.02	A	Original	-1.000	Ea	30,600.00000	\$-30,600.00
Reason: Contractor decided sealing wasn't necessary because there was no infiltration										
_ San Swr, 48", Liner, CIPP-F	8037001	0007	0035	18214.02	A	Original	-70.260	Ft	312.00000	\$-21,921.12
_ San Swr, 48", Prep, Clean, and Televis	8037001	0003	0015	18214.02	A	Original	-145.730	Ft	10.00000	\$-1,457.30

Total Dollar Value: \$-211,771.71

New Items

Item Description	Item Code	Prop. Line	Proj. Line	Project	Catg.	Item Type	Proposed Quantity	Unit	Unit Price	Dollar Value
_ Liquidated Damages Settlement	8167051	0085	0205	18214.02	D	Adjustment	1.000	LS	-59,144.70000	\$-59,144.70

Reason: Settlement agreement between MIDDD & Lanzo

Total Dollar Value: \$-59,144.70



Contract Modification

Time Extensions

Site	Site Description	Site Type	Original Compl. Date/Days	Additional No. of Days	New Compl. Date/Days
00	Overall Contract Site	Completion Date	8/2/2016		10/11/2019
Reason: Extending contract to date of Settlement Agreement between MIDDD & Lanzo, October 11, 2019.					

Project / Category Summary

Project/Catg	Project/Category Description	Federal Number	Project Status	Finance System	Control Section	Dollar Value
18214.02	ME & SHA Interceptor and Manhole Rehabilitation	0	CNST			
	A Sewer Rehabilitation					\$-148,303.21
	B Manhole Prep for Sewer Rehabilitation					\$-62,227.00
	C Manhole Rehabilitation					\$-1,241.50
	D Miscellaneous					\$-59,144.70
Total:						\$-270,916.41
Total Net Change Amount:						\$-270,916.41

If authorized, the contractor agrees to do the work outlined above under the direction of the Engineer, and to accept as payment in full the basis of payment as indicated. Prime Contractor, you are authorized and instructed as the contractor to do the work described herein in accordance with the terms of your contract.

Prime Contractor: Lanzo Lining Services, Inc.-Florida		Recommended by Construction Engineer: Brent Kraft	
_____	_____	_____	_____
Signature	Date	Signature	Date
Loren Crandell, PE		Macomb County Public Works Office	
_____	_____	_____	_____
Signature	Date	Signature	Date



August 14, 2018

Evans Bantios, PE, Construction & Maintenance Engineer
Macomb County Public Works Office
21777 Dunham Road
Clinton Township, MI 48036

RE: **Letter of Recommendation
Time Extension, Liquidated Damages, and Project Wrap-Up**

Project: ME and SHA Interceptor
and MH Rehabilitation

MCPWO 09-0014.16.1 / SRF 5624-01

Project No: 18214.02

Mr. Bantios,

The purpose of this letter is to provide our recommendations for adjusting the Contract Times and the assessment of Liquidated Damages for the Macomb Element and Sterling Heights Arm Interceptor and Manhole Rehabilitation project. We have reviewed the Contractor's Liquidated Damages and Request for Time Extension letters (attached) and make the following recommendations:

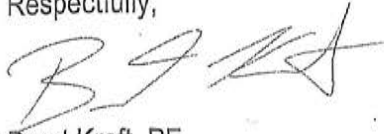
1. A certificate of Substantial Completion should be issued by the Owner stating the Work reached Substantial Completion on December 7, 2016, the basis for which is as follows:
 - a. Although Article 15 of the General Conditions requires the Contractor to request a certificate of Substantial Completion when they feel the entire Work is ready for its intended use, the Contractor never requested one. We recommend December 7, 2016, because this date marks the re-opening of 18 Mile Rd, a date in which one could consider the Work as sufficiently complete.
 - b. Per Article 4 of the Agreement, the Contractor is to pay Liquidated Damages of \$1,550 for each day that expires between the contractual Substantial Completion date and the time work is actually substantially complete.
2. An extension of 14 days to both the Substantial Completion date, and the Final Completion date should be granted for the 18 Mile Rd. manhole rehabilitation work that was performed under Change Order No. 4. We had recommended this time extension in our November 23, 2016 letter (attached to Lanzo's request), but it was not included in Change Order No. 4.
3. An extension of 1 day to the Final Completion date should be granted for the "Plug and Patch Abandoned Lateral" that was performed under Change Order No. 4. We are not recommending an extension of time for Substantial Completion because the Plug and Patch work was performed after our recommended Substantial Completion date.

What follows is a summary of the above recommendations and their impacts on Contract Times and Liquidated Damages:

Item	Time
Original Substantial Completion date	7/3/2016
Total days extended under Change Orders 1 through 4	88 days
Substantial Completion date after Change Order 4	9/29/2016
Recommended extension to Substantial Completion date (per this letter)	14 days
Recommended Substantial Completion date	10/13/2016
Recommended date of certificate of Substantial Completion	12/7/2016
Recommended days assessed for Liquidated Damages	55 days
Rate of liquidated damages	\$1,550.00/day
Recommended liquidated damages	\$85,250.00
Original Final Completion date	8/2/2016
Total days extended under Change Orders 1 through 4	88 days
Final Completion date after Change Order 4	10/29/2016
Recommended extension to Final Completion date (per this letter)	15 days
Recommended Final Completion date	11/13/2016
Date last major pay item is complete (final TV of plug and patch segment)	5/26/2017
Date Pay App 13 is submitted	8/1/2017

Should you have any questions, please do not hesitate to ask.

Respectfully,



Brent Kraft, PE
Project Engineer

Attached

1. Request for Time Extension 4

Cc: Angelo D'Alessandro, LTTN
Rob Johnson, Project Manager, LTTN
Loren Crandel, Partner, Giffels Webster
Jon Bixby, Project Engineer, Giffels Webster



Candice S. Miller
Public Works Commissioner
Macomb County

To: Macomb Interceptor Drain Drainage District Board Members

CC: FILE

From: Stephen Downing, Construction & Maintenance Manager

Date: October 17, 2019

Subject: Change Order #1 Approval Request for Odor & Corrosion Study – Jacobs

The 2017/2018 Macomb Interceptor Drain Drainage District (MIDDD) budget allocated \$500,000 for a system wide Odor & Corrosion Study. A competitive bid was issued on MITN for consultants to submit proposals to conduct the study. The Board approved the recommendation to award the contract to Jacobs, the total contract value is \$433,891. The original proposal included a recommended allowance of \$60,000 to conduct fan testing in the system. The allowance was not included in the original contract value.

The fan testing was performed this past summer in conjunction with the Oakland-Macomb Drain Drainage District (OMIDDD), who Jacobs is concurrently conducting a system wide Odor & Corrosion Study for. The fan testing was completed for less than the recommended allowance by combing the efforts. The fan testing was approved and overseen by the MCPWO Engineering staff.

A draft copy of the change order has been attached for reference. On behalf of the MCPWO Engineering staff please approve this request to approve \$45,500 for the MIDDD Odor & Corrosion Fan Testing.

Attachments: Draft Change Order No. 2
Board Approved Award Letter
Fan Testing Plan

OFFICE LOCATION: 21777 Dunham Road, Clinton Township, Michigan 48036 • Phone: 586-469-5325 • Fax: 586-469-5933

MAILING ADDRESS: P. O. Box 806, Mt. Clemens, Michigan 48046-0806

ENGINEERING • Phone: 586-469-5910 • Fax: 586-469-7693 ♦ **SOIL EROSION** • Phone: 586-469-5327 • Fax 586-307-8264

Date of Issuance:	5-28-19	Effective Date:	6-1-19
Owner:	MIDDD	Owner's Contract No.:	WWS-2018-010
Engineer:	Jacobs	Project No.:	
Project:	Odor & Corrosion Study	Contract Name:	

The Contract is modified as follows upon execution of this Change Order:

Provide the fan testing services as described in the fan testing plan as approved by the Owner.

The original [Contract Sum/Guaranteed Maximum Price] was \$ 433,891.00

The net change from previously approved Change Orders No. __ to No. __ : \$ 0

The [Contract Sum/Guaranteed Maximum Price] prior to this Change Order: \$ 433,891.00

The [Contract Sum/Guaranteed Maximum Price] prior to this Change Order will be [increased/decreased/unchanged] by: \$ 45,500.00

The new [Contract Sum/Guaranteed Maximum Price], including this Change Order, will be: \$ 479,391.00

The Contract Time will be [increased/decreased/unchanged by]: 0 (days)

The date of Substantial Completion as of the date of this Change Order, therefore, is:

ACCEPTED:	ACCEPTED:
By: _____	By: <u>Mah A. Pochy</u>
Owner (Authorized Signature)	Engineer (Authorized Signature)
Title _____	Title <u>Client Account Manager</u>
Date _____	Date <u>Sept. 4, 2019</u>



Candice S. Miller

Public Works Commissioner
Macomb County

From: Macomb County Public Works Office

Date: 6/26/18

To: MIDDD Board

Copy: File
Evaluation Committee

RE: Proposal Evaluation Project Award Recommendation
MCPWO RFP No.: **MCPWO-WWS-2018-RFP-010**
MCPWO Proposal Name: **Odor & Corrosion Study**

This is an open competitive contract. The Request for Proposals (RFP) was advertised from 5/24/18 to 6/21/18 on the Michigan Inter-Governmental Trade Network (MITN) website. Six-Hundred Fifty (650) solicitations were sent out via MITN and Thirty-One (31) firms downloaded the RFP.

The purpose of this RFP is to solicit engineering services to conduct a comprehensive Odor & Corrosion Study of the MIDDD and NGI systems. The in-depth odor and corrosion study will confirm the current sources of odors and corrosion, obtain new odor and pressure data, review historical data, reports and studies; evaluate potential impacts to odor and corrosion due to anticipated changes in the system and/or operations; and analyze alternative solutions to mitigate odor complaints and corrosion induced pipe degradation throughout the system is required. The results of the study will determine the source of odors, estimate corrosion potential and evaluate operational and add-on technology modifications to reduce odors and corrosion.

Three (3) Addendums were issued during the course of the RFP. The Addendums provided responses to vendor questions submitted during the question period.

On 6/21/18, proposals were received from 2 firms. Each member of the Evaluation Committee independently reviewed and scored the proposals in accordance with MCPWO's policy. The possible range of scores was from 0 to 100. The proposers were ranked as follows:

Firm	Score	Proposed Cost
Brown & Caldwell	84.81	\$416,092.00
CH2M (Jacobs)	98.66	\$433,891.00

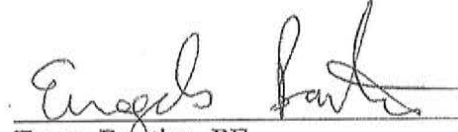
The Evaluation Committee recommends that **CH2M Engineers, Inc. (CH2M)** a subsidiary of **Jacobs Engineering Group, Inc. (Jacobs)**, the number one ranked proposer, be named as the consultant for the above referenced Project. The Evaluation Committee consisted of the MCPWO Wastewater Engineering staff.

The original budget for the odor and corrosion study is \$500,000, which places this award recommendation under budget and provides opportunity for additional scope if required.

On behalf of the Board please indicate your approval of this recommendation by signing below.
Thank you for consideration of this recommendation.



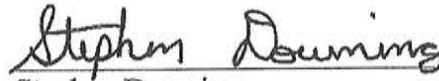
Vince Astorino
Operations & Flow Manager
MCPWO Engineering-Wastewater Services



Evans Baatios, PE
Construction & Maintenance Manager
MCPWO Engineering-Wastewater Services



Steve Rozycki, PE
Engineer II
MCPWO Engineering-Wastewater Services

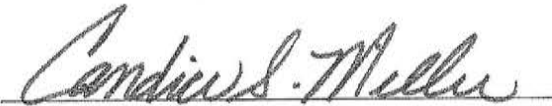


Stephen Downing
Engineer II
MCPWO Engineering-Wastewater Services

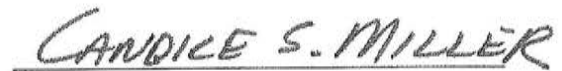
Approved: _____

Not Approved: _____

Hold: _____



Authorized Board Member Signature
Board Name

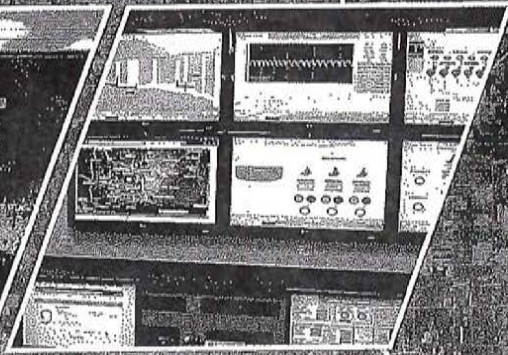
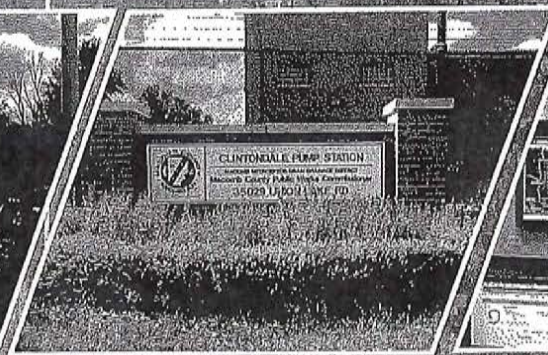
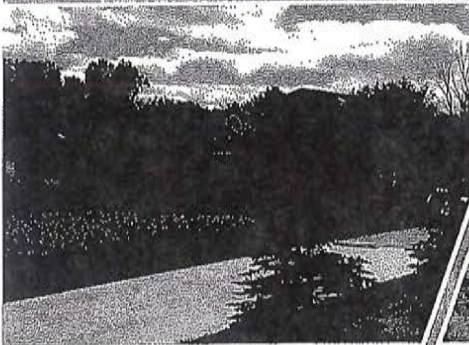


Authorized Board Member Name (print)

Cost Proposal for

Odor & Corrosion Study

Proposal No.: MCPWO-WWS-2018-RFP-010



Submitted to

Macomb Interceptor Drain Drainage District



Submitted by

JACOBS ch2m

June 2018

PROPOSAL FORM

Proposal No. Proposer: CH2M HILL Engineers, Inc. (print or type company name)

BASE PROPOSAL

The undersigned Proposer, having carefully examined the Proposal Documents and the Scope of Work, the requirements of the Request for Proposal and all subsequent Addenda, all as issued by the Owner, and being familiar with all conditions and requirements of the Scope of Work, hereby proposes and agrees to furnish all material, labor, equipment, tools and supervision; and to furnish all services necessary to complete the Work required in accordance with the Bidding Documents for the following projects, in the following amount:

Four hundred and thirty-three thousand, eight-hundred and ninety-one Dollars \$ 433,891

(Sum to be written out)

Respectfully submitted this 18 day of June, 2018

By: CH2M HILL Engineers, Inc. (Name of bidding firm or corporation)

By: [Signature] (Signature)

Doug Stachler, PE (Type or print name)

Title: Designated Manager/Signature Authority (Owner/Partner/President/Vice Pres.)

Address: Two Easton Oval, Suite 500, Columbus, OH 43219

Phone: 614-825-6754

License: See next sheet

Federal ID No.: 32-0100027

Witness:

Attest: [Signature] (Signature)

By: Julie T. Arnold (Type or print name)

Title: Assistant Secretary (Corporate Secretary or Assistant Secretary Only)



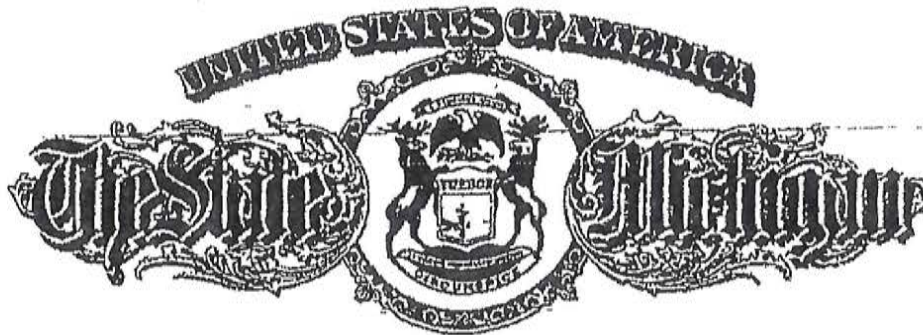
CH2M HILL Engineers, Inc. Company Name

[Signature] Company Representative

Designated Manager/Signature Authority Title

6-18-2018 Date

Acknowledgment of receipt: Addendum #1, June 4, 2018 Addendum #2, June 8, 2018 Addendum #3, June 15, 2018



Department of Licensing and Regulatory Affairs
Lansing, Michigan

This is to Certify That

CH2M HILL ENGINEERS, INC.

a(n) DELAWARE profit corporation, was validly authorized on December 1, 2004, to transact business in Michigan, and that said corporation holds a valid certificate of authority to transact business in this state.

This certificate is issued pursuant to the provisions of 1972 PA 284, as amended, to attest to the fact that the corporation is in good standing in Michigan as of this date and is duly authorized to transact business in this state any business of the character set forth in its application which a domestic corporation formed under this act may lawfully conduct

This certificate is in due form, made by me as the proper officer, and is entitled to have full faith and credit given it in every court and office within the United States



Sent by Facsimile Transmission
1335928

In testimony whereof, I have hereunto set my hand, in the City of Lansing, this 25th day of August, 2015

Alan J. Schefke, Director
Corporations, Securities & Commercial Licensing Bureau

June 20, 2018

Macomb Interceptor Drain Drainage District
Attn: Madison Tanghe, Senior Secretary
21777 Dunham Road
Clinton Township, MI 48036

Subject: Cost Letter for Macomb Interceptor Drain Drainage District
Proposal No. MCPWO-WWS-2018-RFP-010 Odor & Corrosion Study

Dear Ms. Tanghe,

In accordance with the RFP and Addenda Nos. 1, 2, and 3 for the above referenced project, attached are the following documents for our Cost Proposal:

- Proposal Form
- Michigan License
- Cost Proposal Matrix

The cost proposal matrix includes the following information:

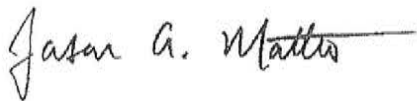
- Total hours for key personnel
- Percentage of time for key personnel
- Hourly rates for key personnel that include overhead and profit
- Total hours and cost for each major task

The cost proposal matrix also includes some assumptions used to develop the base fee and includes an allowance for fan testing that may be required and is not included in the base fee. Please note that the base fee includes effort during Tasks 3 and 4 to further develop and utilize our WATS sewer process model. Although a sewer process model was not explicitly required by the RFP, we have included its use in our scope and base fee because we believe it is a critical tool for cost-effectively analyzing multiple system operational scenarios. In addition, we have not included an allowance for confined space entry since we believe that the sampling can be accomplished without confined space access.

Please do not hesitate to contact Jason Matteo at 586-453-8666 if you have any questions or require any clarifications related to our cost proposal.

Sincerely,

CH2M Engineers, Inc. (now Jacobs)



Jason Matteo, PE
Project Manager



Doug Stachler, PE
Designated Manager/Signature Authority

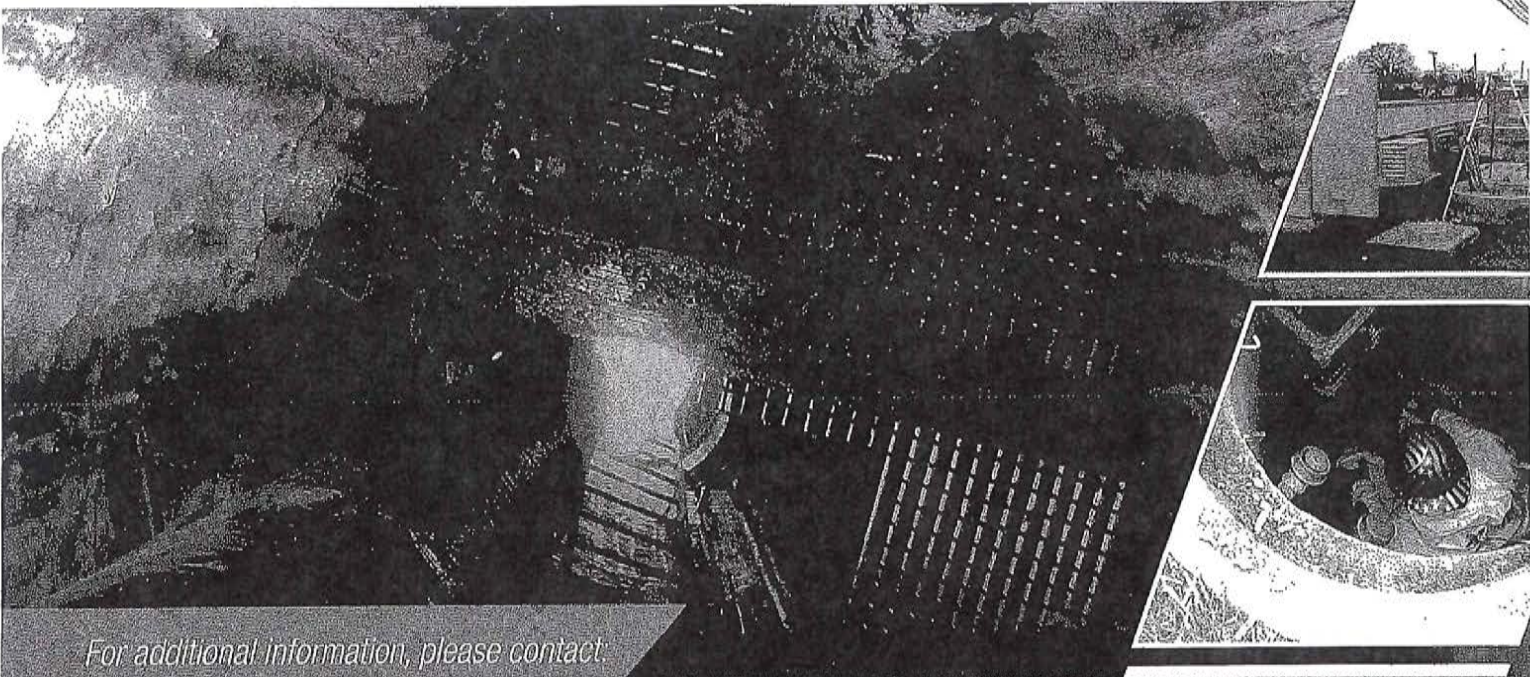
Miocomb Interceptor Drain Drainage District
Odor and Corrosion Study
Cost Proposal Matrix

Task No.	Task Description	Level of Effort (hours)												Total Hours By Task	Labor Charge by Task (Using 2.84 Multiplier)						
		Pipeline Charge	Project Manager	Senior Technical Lead	Sampling/Monitoring		Sewer Corrosion & Odor Modeling	Air Dispersion Modeling	System Operation & Hydraulic Modelling	Mitigation Alternatives Analysis		Ventilation Lead	QA/QC Review			CAD Tech	Project Assistant				
1	Project Kickoff and Data Acquisition	Mark Pochodylo \$255	Jason Mantoo \$106	Bill Dising \$249	Alex Demith \$110	Jeff Yalel \$148	Maddy Wax \$89	Matthew Ward \$274	Dr. Monica Wright \$164	Dr. Kevin Nielsen \$251	John Siczka \$197	Allan Gabelions \$205	Bart Krasman \$203	Nial Forester \$165	Scott Snowden \$239	Dr. Jay Veilertsen \$200	\$99	\$99	24	136	\$22,330
2	Data Acquisition/Sampling		20	20	40	80	80				40	8							15	304	\$49,590
3	Data Integration and Dispersion Modeling ^a		80	60				100		12	80	20		40	16	15			8	612	\$114,831
4	Alternatives Analysis ^a	8	40	60				24	24	20	120	100	80	40	15	15			40	588	\$115,932
5	Report	8	24	40				20	20	8	40	60	16	30	8	8			50	372	\$66,908
6	WVMP Coordination																				\$10,000
7	Drop Shaft and Connecting Sewer Rehabilitation Coordination																				\$10,000
64	Total Labor	20	188	204	40	104	104	144	224	40	280	200	96	110	40	40	40	40	138	2,012	\$389,051
	Percentage of Time ^b	1%	9%	10%	2%	5%	5%	7%	11%	2%	13%	10%	5%	5%	2%	2%	2%	2%	7%		

*NOTES:
a) Tasks 3 and 4 include effort to further develop Jacobs' WATS sewer process model, calibrate the WATS model and evaluate several operational scenarios.
b) "Percentage of Time" is calculated based on a total project duration of one (1) year (2,080 hours).

Outlog and Pressure Logger Rental (assumes 20 units of each, one-month monitoring period): \$10,000
Traffic Control (assumes four crew-days): \$12,800
Sampling Supplies and Sample Lab Analysis: \$10,000
Total Base Fee: \$493,891

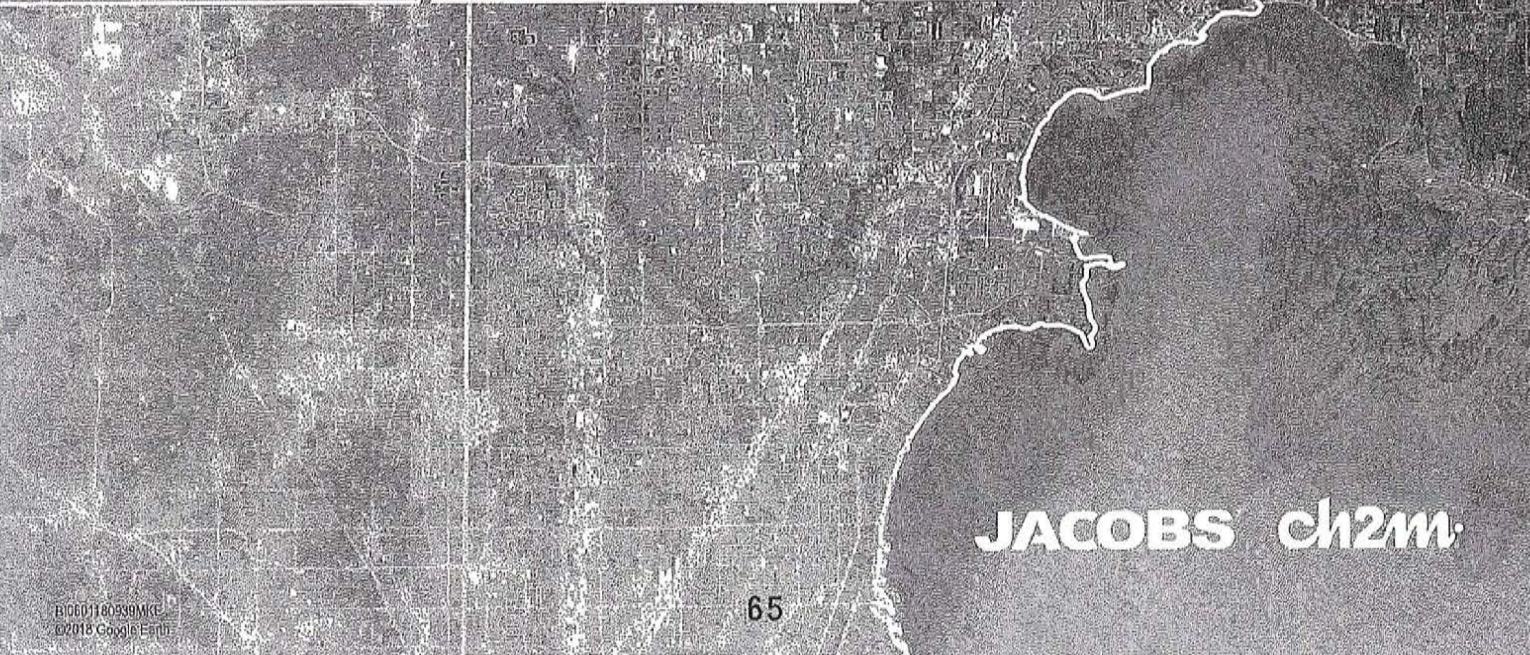
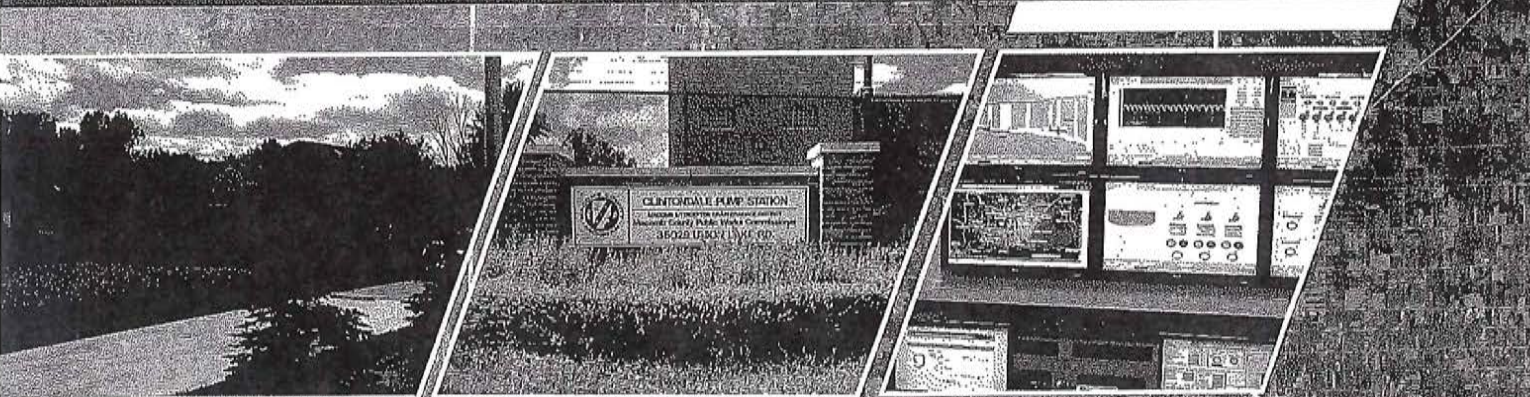
Travel, Lodging, Meals: \$10,000
Fan Testing Allowance (Optional; assumes two tests): \$60,000
OMIDDD Collaboration Allowance (Task 8): \$0



For additional information, please contact

Jason Matteo, PE

Project Manager
30800 Telegraph Rd #4900
Bingham Farms, MI 48025
586-453-8666
jason.matteo@ch2m.com



JACOBS ch2m.



MICHAEL GREGG
State of Michigan
Department of Agriculture
and Rural Development



Candice S. Miller
Macomb County
Public Works Commissioner



Oakland-Macomb Interceptor Drain (OMID) and Macomb Interceptor Drain (MID)

Odor/Corrosion System-Wide Study

To: Joel Brown, PE, Oakland County Water Resources Commissioner (OCWRC)
Evans Bantios, PE, Macomb County Public Works Commissioner's Office (MCPWO)

Prepared by: Matthew Ward, PE, Jacobs Engineering Group (Jacobs)
Bill Desing, PE, Jacobs
Jason Matteo, PE, Jacobs

Subject: Fan Testing Scope of Work

Date: May 28, 2019

Jacobs Job No.: 697317CH/707997CH

Background and Purpose

The Oakland-Macomb Interceptor Drain (OMID) and Macomb Interceptor Drain (MID) wastewater collection system includes numerous drop connections ranging in drop height (estimated from the sewer invert elevation directly downstream of the meter [flume] to the downstream receiving interceptor sewer invert elevation) from less than 12 inches to approximately 41 feet. Average dry weather flow rates for these customer community connections typically range from approximately 0.06 cfs (RC-S-2, CH-S-3) to 25.9 cfs (Meter 1000, in lieu of OC-S-2). These drop connections significantly influence sewer ventilation across the system, which is one of the most important parameters related to odor generation and sewer corrosion rates due to fate of sulfides.

However, the ventilation influence of these types of free fall drop connections has not been studied extensively and the methods to model and quantify the ventilation need refinement. At the approval of OMIDDD and MIDDD, a field study will be completed to directly measure pressure and ventilation through a subset of the OMID and MID drop connections. The results will then be generalized to the remaining drop structures by interpolating between both the drop heights and flow rate ranges of the studied subset. The results will further be used to develop empirical relationships between wastewater flow rates, drop heights of the customer connections, differential pressure across the drops, and sewer air flow through the drops. Algorithms of these relationships will be developed and incorporated into the WATS sewer corrosion model to refine the OMID/MID WATS model. These results will also be used in the AERMOD air dispersion modeling that we are performing for some representative drop connections that will determine the level of control that is required to mitigate impacts on the surrounding community.

Pressure Monitoring and Fan Testing Methodology

The proposed methodology will include differential pressure monitoring to track headspace pressure, relative to ambient pressure, and across the drop structure itself. It will include gas tracer testing to measure air velocity in the sewer headspace. Tracer gas pulses will be released into the headspace while concentration monitors placed in the downstream headspace record the pulse as it passes each monitor. The difference in time between concentration peaks recorded by each monitor will indicate the travel time between each monitor.

The pressure monitoring will be combined with fan testing whereby a fan will be used to extract air from near the drop structures and force air counter-current through each drop structure. The fan testing results will help determine air extraction rates needed to extract hydrogen sulfide and capture odors generated in each drop structure and to size permanent odor control equipment.

This plan will accomplish the following objectives.

1. Simultaneously measure water flow, differential pressure across the drops, and air flow rates through the drops for several representative drop connections and a range of wastewater dry weather flow rates.
2. Identify the air extraction rates needed to cause counter-current air flow through the drop connections, thereby capturing hydrogen sulfide generated at the drop structures due to stripping. The air extraction rates will necessarily include air from the upstream sewers as well as the targeted drop structures.
3. Complete the above objectives over half a diurnal flow cycle for several drop connections, which will bracket the range of drop heights and wastewater dry weather flow rates.

Sampling Apparatus and Equipment

The sampling protocol is shown on **Figure 1**, which depicts a profile diagram of a representative drop structure with labels indicating the locations of each measured parameter. Measured parameters are defined as follows:

- Q_{Water} = Water flow through the drop (L/s)
- Q_{in} = Air flow entering from the upstream headspace (L/s)
- Q_{Drop} = Air flow through the drop structure, signed positive in the co-current direction (L/s)
- Q_{Fan} = Air flow through the fan (L/s)
- P_A, P_B, P_C, P_D = Static pressure relative to ambient, P_{amb} , at locations A, B, C and D (Pa)
- $P_D - P_C$ = Pressure across the drop is measured not relative to ambient (Pa)
- C_A, C_B = Tracer gas concentration at locations A and B (ppmv)
- M_A, M_B = Mass of gas released, in terms of volume per time of pure gas at ambient pressure (L/s)

Wastewater flow rates will continue to be measured during the tests using the Parshall flumes in place directly upstream of each drop structure.

Air flow rates through the fan will be determined by measuring air velocity in the fan inlet duct using a hotwire anemometer. Air flow in the headspace will be determined from the travel time of a carbon monoxide tracer. Sequential carbon monoxide pulses will be released into the headspace and carbon monoxide concentration will be monitored. The difference in time between the center of mass of each pulse indicates the travel time as illustrated on **Figure 2**, which is an example of gas tracer measurements from a previous project. The mass of gas released will be measured using a rotometer plumbed in-line with the tracer gas cylinder, regulator, and gas delivery tubing.

An attempt will be made to measure carbon monoxide directly in the headspace by lowering the CO loggers into the headspace for short periods. Due to the humid headspace environment, it may be necessary to protect the CO loggers from water vapor. In this event, a desiccant column and air pump will be used to pull a dried gas sample across the CO logger. The arrangement is illustrated on **Figure 3**.

Pressure will be measured using differential pressure loggers ported to tubing running between the logger and the sewer headspace point of interest. For locations A and B, the pressure logger will have one port open to the ambient atmosphere. To measure differential pressure across the drop, one pressure logger will be used with the positive port running to the bottom of the drop structure and the negative port running to top of the drop structure. The pressure logger with protective case is shown on **Figure 4** below.

A trailer-mounted variable speed fan with carbon scrubber will be used to force ventilate the sewer headspace and treat the resulting foul air stream before releasing it to atmosphere. A generator will be used to power the fan. The fan apparatus is shown on **Figure 5** below.

An equipment list is provided in **Table 1**.

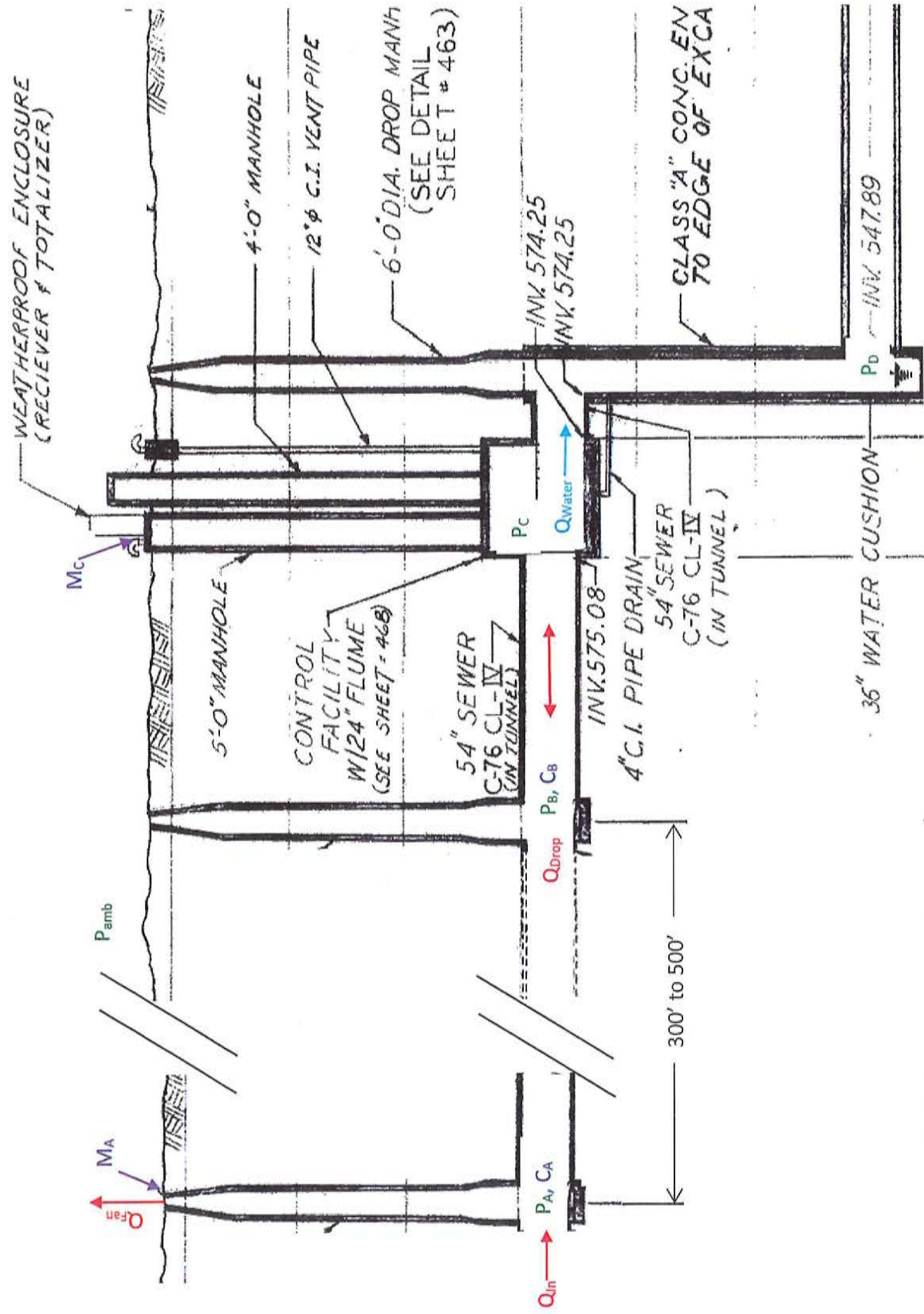


Figure 1. Profile Diagram of Representative Drop Structure with Locations of Parameters to be Measured

Table 1. Equipment List

Equipment	Make/model	Source	Number	Duration (weeks)	Unit Cost	Cost	Comments
15,000 cfm trailer mounted Fan	Airflow Sciences	Rental from Airflow Sciences	1	1	\$45,000	\$45,000	Approximate; includes generator; does not include carbon
Carbon Monoxide Cylinder	Airgas	Rental from Airgas	1	1	\$40	\$40	
Dolly for moving Cylinder		Home Depot	1			\$100	
CO Regulator	Airgas	Airgas	1			\$160	
0 - 20 L/min Rotometer	Dwyer	Dwyer	3			\$80	
1/2" tubing		Home Depot	250			\$100	
1/2 lb lead weights		Fishing tackle store	6		\$4	\$24	
Carbon Monoxide Loggers	Lascar	MicroDAQ.com	4		\$110	\$440	
Carbon Monoxide Personal monitors							
CO Logger cable	Lascar	MicroDAQ.com	1		\$12	\$12	
Air pumps		Rental from Pine	2	2	\$50	\$200	
Desiccant media			10		\$5	\$50	
0-5 inWC Pressure Loggers	Pace Scientific	Rental from Jacobs	3	1	\$75	\$225	
0-1 inWC Pressure Loggers	Pace Scientific	Rental from Jacobs	9	1	\$75	\$675	
Hotwire Anemometer			1			\$0	Jacobs own this unit.
Manometers	Dwyer		2			0	Jacobs own these units.

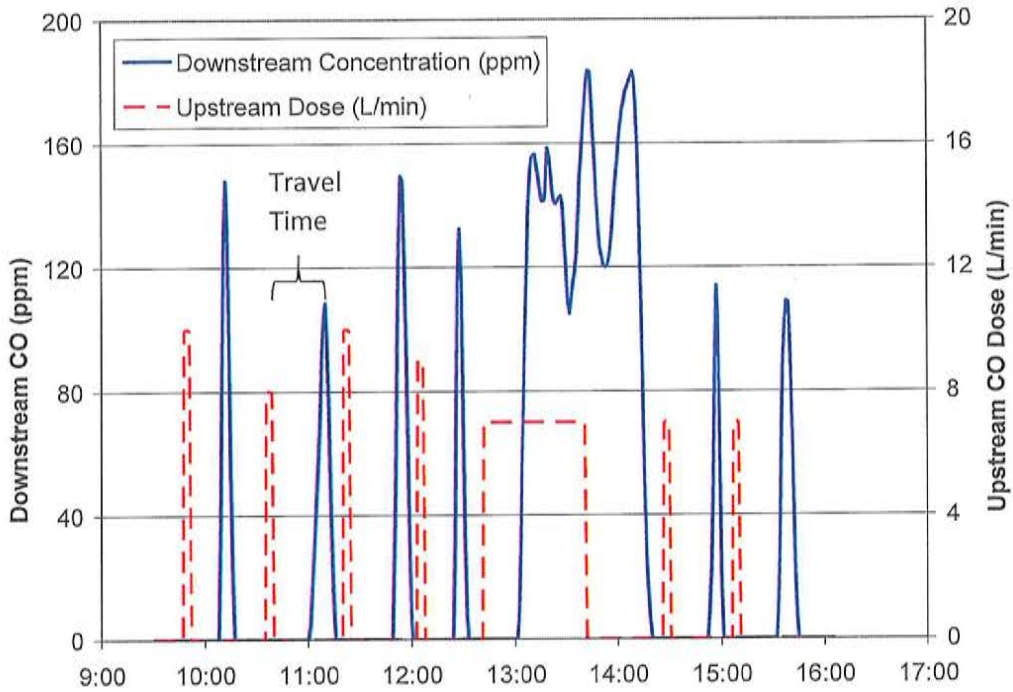


Figure 2. Example of Tracer Pulse Travel-Time Results

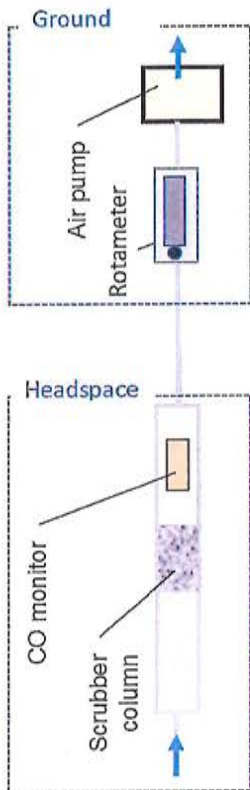


Figure 3. Tracer Gas Sampling Apparatus

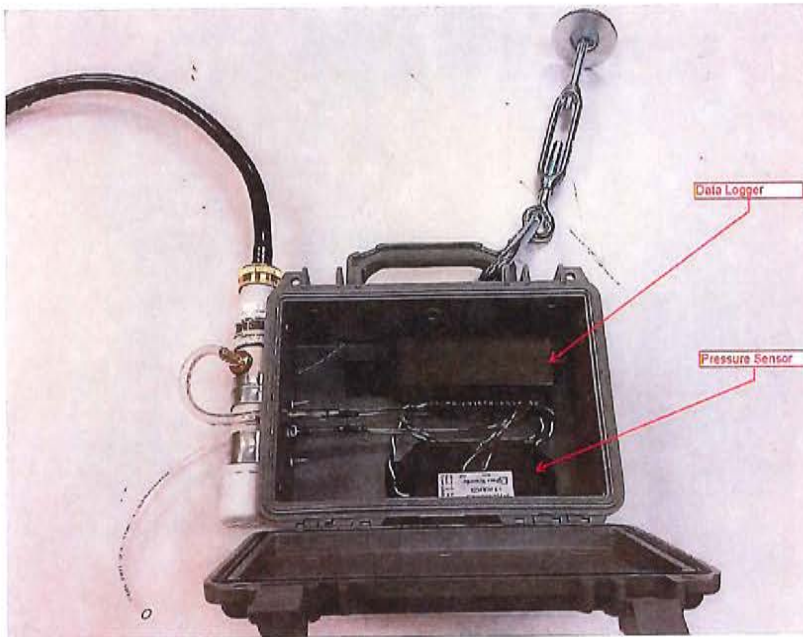


Figure 4. Pressure Logger Apparatus

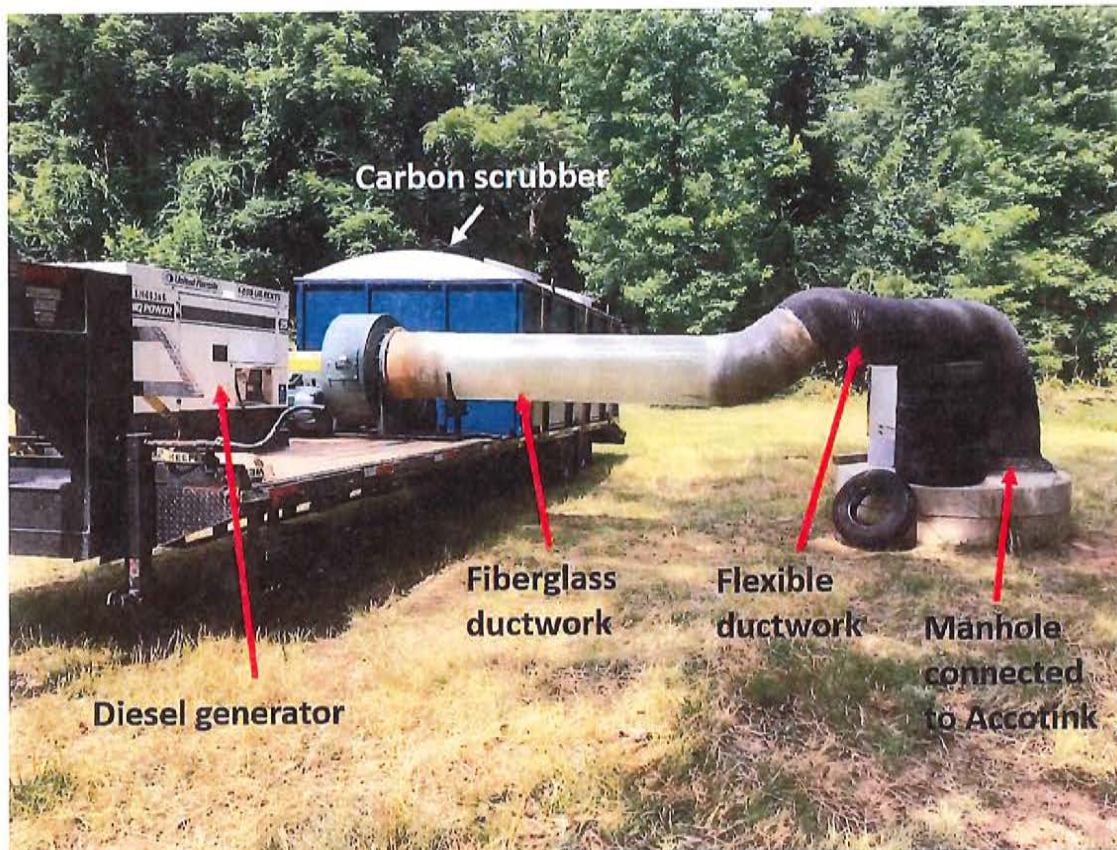


Figure 5. Fan Apparatus

Sampling Locations

Our goal is to select representative drop connections/metering sites that will aid in bracketing the drop heights and average dry weather flow rates. Also, the number of test site locations should be balanced between the MID and OMID as much as practical, and a reasonable distance from populated areas, where possible, to minimize odor impacts during the 24-hour tests.

In addition, the Owner requested that Jacobs evaluate the ST-S-3 metering site, due to the numerous historical odor complaints near that site and OMIDDD’s desire to mitigate that specific issue, if within OMIDDD’s control to do so. It should be noted that due to the proximity of the ST-S-3 meter station to a surrounding residential area, this test is planned to be shorter than the others, and will occur during business hours, when most residents are anticipated to be at their respective businesses. Given this shorter test and the cost and schedule impacts of including carbon odor control for this single test, it was agreed to by the Owner that carbon would not be provided for this test.

Given the above criteria, we propose four (4) testing sites, as shown on **Table 2** below.

Table 2. Proposed Testing Sites

Meter ID	General Location	City	Collection System	Sewer Reach	Approximate Drop Height (feet)	Average DWF (cfs, in 2018)
OC-S-2	Dequindre, South of E Avon Road	Rochester Hills	OMID	Oakland Arm	11.0	25.9 (Meter 1000)
MA-S-2	Garfield and 21 Mile Roads	Macomb Twp.	MID	Garfield Arm	7.4	5.0
ST-S-3	Dodge Park and Sorrento Roads	Sterling Heights	OMID	Oakland Arm	7.4	6.5
ST-S-4	14 Mile Road at ITC Corridor	Sterling Heights	OMID	Edison Corridor	30.9	1.6

Preparatory Steps

The following preparatory steps will be completed prior to the initiating the field work

1. Order all equipment. Receive and test all equipment prior to field work. Charge or replace batteries as needed. Purchase rope, tubing and weights locally. (Jacobs)
2. Order the CO meters, rotometers air pumps and desiccant prior to field work. Assemble CO sampling train and test it. Measure the gas sample transit time for both columns and confirm that equal transit times can be achieved. The transit time is the time between when the sample enters the train and is logged by the sensor. Auto exhaust can be used as a source of CO. (Jacobs)

3. Test trailer-mounted fan test rig and generator. (Airflow Sciences)
4. Arrange with OMIDDD and MIDDD for access to the sites. (local Jacobs staff)
5. Program pressure loggers. (Jacobs)
6. Perform site reconnaissance at each site to confirm fan testing rig can locate proximate to MH A. Confirm that manholes have pick holes for tubing to penetrate. (local Jacobs staff)
7. Construct manhole inserts if existing manholes lids are not accommodating for the test. (Airflow Sciences)

Field Protocol

Monday AM

Travel to the site, meet with OMIDDD and MIDDD personnel and Jacobs' local staff to review the sampling plan in detail and coordinate. Confirm arrival and function of all equipment.

Monday PM

Deploy pressure loggers at all four (4) locations with continuous logging for the duration of the week. Seal gooseneck vents at each location.

Tuesday AM

Run CO pulses at first drop location. Gas will be injected at **MH A** (or further upstream, if practical) and logged at MHs A and B. Download CO loggers to check results are coherent. Prevent generator exhaust from inadvertently introducing CO into the headspace.

Set up fan and carbon scrubber system. Run CO pulses at first drop location with the fan extracting air from MH A. Dial in fan air flow rates until air is flowing counter-current from MH B to MH A as indicated by hand-held manometer readings. Pressure will be lower at MH A than B. Gas is injected at **MH C** and logged at MHs A and B. Download CO loggers to check results are coherent. Based on the results increase or decrease fan air targeting a headspace air velocity of between 200 and 800 ft/min from MH B to MH A.

Tuesday PM

With Fan running, assess zone of influence at the other locations and adjust fan air flow to identify air extraction rates needed to achieve a remote zone of influence, if possible. If not possible, optimize air extraction for odor control local to the first location. Allow fan to run overnight.

Wednesday

Move fan rig to the second drop connection location and repeat the activities of Tuesday.

Thursday

Move the fan rig to the third drop location and repeat the activities of Wednesday.

Friday AM

Move the fan rig to ST-S-3 (last of the four locations) and complete fan testing needed to identify air loads sufficient for local odor control. No CO pulse tracers will be completed for this location. Pull and download all pressure loggers, check the results are coherent.

Friday PM

Rectify any problems indicated by the pressure results. Return all equipment.

Fan Testing Schedule

Based on our conversations with OMIDDD and MIDDD representatives, Jacobs' staff, and anticipated weather conditions, it appears that the **week of Monday, June 10, 2019** will be the most opportune time to conduct the field work. Given the proposed scope of work and field work protocol provided above, we will need the entire week to conduct the proposed monitoring and testing.

We do not anticipate significant impacts to the overall study schedule and will continue our development and evaluation of mitigation alternatives.

Requested Budget

Our current contracts with OMIDDD and MIDDD include Allowances of \$60,000, each contract, for field work/fan testing, at the request and approval of OMIDDD/MIDDD. The total allowance of \$120,000 was assumed to cover a total of four (4) sites. Since we would be conducting four (4) sites consecutively throughout the week-long test and coordinating the overall effort together rather than conducting these tests separately, we expect to gain significant efficiencies. Also, after several internal discussions and with OMIDDD and MIDDD engineers, we are assuming no carbon treatment will be necessary for these tests. Carbon would be an expensive addition to this effort, and considering the sites and surrounding areas, as well as the duration of these tests, we do not anticipate this will be necessary.

Given the above, we anticipate the following budget will be required to complete the week-long test for four (4) sites.

- **Airflow Sciences (No Carbon) Budget:** \$45,000
- **Jacobs' Equipment/Rental/Supplies:** \$3,000
- **Jacobs' Travel:** Lead Project Engineer and Staff Engineer = $(\$500 + \$150*6) * 2 \text{ people} + \$60*6 = \$3,160$
- **Jacobs' Labor (Testing and Preparation):** Lead Project Engineer and Staff Engineer 80 hours * $\$225/\text{hr} + 60 \text{ hours} * \$110/\text{hr} = \$24,600$
- **Jacobs' Labor (PM and Data Analysis/Interpretation):** Project Manager: 30 hours * $\$225/\text{hr} + 30 \text{ hours} * \$277/\text{hr} = \$15,060$
- **Total Requested Budget:** \$91,000 (76% of total allowance; without carbon)

Contact List (for reference)

Tom Hall, GLWA Mechanical Maintenance:	313-999-1455 Thomas.Hall@glwater.org
GLWA System Operations (General):	313-267-6000/9000 (24/7)
Biren Saparia, GLWA System Operations Manager:	313-999-0235 Biren.Saparia@glwater.org
Terry Moore, OMID Flow Control Manager (METCO):	313-829-7207 TMoore@metcoservices.com
Bob Pousho, Inspector, Oakland County WRC:	248-431-3887 PoushoB@oakgov.com
Sid Lockhart, Deputy/Special Projects Manager, OCWRC:	248-431-3814 LockhartS@oakgov.com
Joel Brown, Civil Engineer III, OCWRC:	248-410-4908 BrownJT@oakgov.com
Evans Bantios, Engineer II, Macomb County PWO:	586-524-0070 Evans.Bantios@macombgov.org
Vince Astorino, Operations Manager, Macomb County PWO:	586-615-2436 Vincent.Astorino@macombgov.org
Jason Matteo, Project Manager, Jacobs:	586-453-8666 Jason.Matteo@Jacobs.com
Bill Desing, Senior Odor/Corrosion Technical Lead, Jacobs:	414-517-6819 Bill.Desing@Jacobs.com

John Siczka, Corrosion Control Strategist, Jacobs:

414-526-9223

John.Siczka@Jacobs.com

Matt Gentry, Airflow Sciences (Jacobs' Fan Testing Sub):

248-425-8398

MGentry@airflowsciences.com

Northeast Sewage Pumping Station:

313-245-1158

DTE Energy:

800-477-4747

DTE Energy Gas Leak Emergency:

800-947-5000

Consumers Energy:

800-477-5050

MISS DIG:

800-482-7171

MACOMB INTERCEPTOR DRAIN 9/17/19 - 10/15/19

Funding Source	Appropriation	Manager	Vendor	Amount	Invoice Detail	Project Summary	Project Balance
SAW 1128-01 (Closing Date 11.27.19)		Baker	N1 Discovery, LLC	\$ 4,425.00	Invoice #NID4442 - 09.30.19	Data Hosting	
		Astorino	NEXGEN	\$ 2,625.00	Invoice #2231 - 07.01.19	License Maintenance & Support	
		Astorino	Oakland County Treasurer	\$ 4,585,548.67	Invoice #SDS0006703 - 08.31.19	Sewerage Disposal Charges for August 2019	
		Astorino	Premier Safety	\$ 1,391.81	Invoice #04166347 - 09.26.19	Calibration Kits - Gas Detectors	
		Astorino	RedZone Robotics, Inc.	\$ 254,487.38	Estimate #4 - 09.12.19	SAW Grant Condition Assessments - Final	\$ 234,098.12
		Astorino	Sprint	\$ 502.54	Invoice #578736375-095 - 08.27.19	Monthly Cell	
		Astorino	Verizon	\$ 1,686.34	Invoice #9836716028 - 08.23.19	Monthly Cell	
		Astorino	Verizon	\$ 1,915.07	Invoice #9838726592 - 09.30.19	Monthly Cell - 08.24.19 - 09.23.19	
		Astorino	Wade Trim	\$ 2,545.00	Invoice #M2015601 - 08.28.19	As-Needed Services NGI	\$ 91,524.08
		Astorino	Wade Trim	\$ 520.00	Invoice #M2015869 - 09.24.19	As Needed Services 08.24.19 - 09.20.19	\$ 91,004.08
		Astorino	City of Fraser	\$ 620.38	Invoice #19-417 - 08.21.19	Water Bill - 07.22.19 - 08.21.19	
		Stockel	Clancy Contracting	\$ 67,760.00	Invoice #Est #1 - 09.05.19	Bio-filter Woodchip Replacement - Final	
		Astorino	De-Cal, Inc.	\$ 546.20	Invoice #WO19000853 - 09.30.19	Preventative Maintenance on HVAC	
		Clintondale P.S.		Astorino	Clinton Township Treasurer	\$ 3,062.22	Invoice #19-408 - 08.31.19
Astorino	Clinton Township Treasurer			\$ 2,354.87	Invoice #19-454 - 09.30.19	Water and Sewer - 08.27.19 - 09.24.19	
Astorino	De-Cal, Inc.			\$ 506.34	Invoice #WO9191925	Repair Grease Line	
Astorino	DTE Energy			\$ 13,128.09	Invoice #19-464 - 09.30.19	Monthly Electric	
Astorino	DTE Energy			\$ 16,084.27	Invoice #19-411 - 09.05.19	Monthly Electric 08.02.19 - 09.03.19	
Astorino	FJF Door Sales Company, Inc.			\$ 1,695.00	Invoice #167994 - 09.24.19	Replace Door	
Manning	Huntington National Bank			\$ 515,000.00	Invoice #19-440 - 09.20.19	CPS Improvements District Bonds Series 2011	
Astorino	Rotor Electric			\$ 16,100.00	Invoice #2512 - 09.27.19	Annual Switchgear Maintenance	
Astorino	Rotor Electric			\$ 23,299.00	Invoice #2513 - 09.27.19	Electrical Repairs System	
Baker	Aloia & Associates, P.C.			\$ 2,090.00	Invoice #18801 - 08.01.19	Sale of 45345 Garfield Road	
Baker	Aloia & Associates, P.C.			\$ 1,370.25	Invoice #18803 - 08.01.19	MIDDD / 15 Mile Road Sinkhole	
Baker	Aloia & Associates, P.C.			\$ 1,068.75	Invoice #18806 - 08.01.19	MIDDD v 3 Contractors	
Baker	Aloia & Associates, P.C.			\$ 1,642.50	Invoice #18808 - 08.01.19	OMIDDD v MIDDD	
Downing	Anderson, Eckstein & Westrick			\$ 11,470.25	Invoice #123201 - 08.29.19	Warranty Investigation and Report	
Manning	Huntington National Bank	\$ 2,853,900.00	Invoice #19-444 - 09.20.19	Refunding Bond Series 2017A			
Meters		Astorino	HESCO	\$ 17,780.00	Invoice #161024-34 - 09.13.19	Meter Maintenance	\$ 105,320.00
		Astorino	HESCO	\$ 2,496.00	Invoice #10509 - 09.13.19	CT-S-7 Meter Maintenance / ST-S-2 Unblock	
		Downing	Hubbell, Roth & Clark, Inc.	\$ 1,732.52	Invoice #173007 - 09.13.19	SY-S-1 & SY-S-2 Meter Rehab	\$ 29,845.08
		Downing	NTIH Consultants, Ltd.	\$ 2,695.59	Invoice #619743 - 09.04.19	Meter & Drop Shaft Rehab	\$ 202,518.38
		Astorino	Chesterfield Township	\$ 6,450.05	Invoice #19-424 - 09.17.19	NGI Force Main Piggng	\$ 6,709.47
		Astorino	De-Cal, Inc.	\$ 10,674.05	Invoice #WO9190848 - 09.04.19	Sluice Gate Repairs	
		Astorino	DTE Energy	\$ 1,171.39	Invoice #19-401 - 08.30.19	Monthly Electric 08.01.19 - 08.29.19	
		Astorino	DTE Energy	\$ 1,250.74	Invoice #19-449 - 09.30.19	Monthly Electric - 08.30.19 - 09.30.19	
		Astorino	Flowmore Services	\$ 16,635.00	Invoice #23616 - 09.11.19	Cleaning 22" HDPE piping - Piggng	
		Astorino	Huntington National Bank	\$ 205,125.00	Invoice #19-438 - 09.20.19	Lenox Local Refunding Bond 2018	
		Manning	Huntington National Bank	\$ 369,393.75	Invoice #19-439 - 09.20.19	NGI Series 2010	
		Manning	Huntington National Bank	\$ 328,106.26	Invoice #19-441 - 09.20.19	NGI Refunding 2015	
		Astorino	National Industrial Maintenance	\$ 1,000.00	Invoice #35730 - 09.30.19	Trash Basket Maintenance	
		Astorino	National Industrial Maintenance	\$ 1,325.00	Invoice #36056 - 09.30.19	Trash Basket Maintenance	
Astorino	US Bank	\$ 48,193.75	Invoice #1469435 - 09.11.19	Debt Service Payment on 11.01.19 - Phase 5			

MACOMB INTERCEPTOR DRAIN 9/17/19 - 10/15/19

<u>Funding Source</u>	<u>Appportionment</u>	<u>Manager</u>	<u>Vendor</u>	<u>Amount</u>	<u>Invoice Detail</u>	<u>Project Summary</u>	<u>Project Balance</u>
OMID		Astorino	Macomb County Treasurer	\$ 620.56	Invoice #19-418 - 07.18.19	Reimbursement to General Fund for OMID	
		Downing	Oakland County Treasurer	\$ 4,585,548.67	Invoice #SDS0006706 - 09.30.19	Sewer Disposal September 2019	
SCADA		Astorino	Tetra Tech, Inc.	\$ 22,895.00	Invoice #51481290 - 08.29.19	SCADA Standards Development &	\$ 77,105.00
SEMSD		Astorino	Fishbeck, Thompson, Carr & Huber, Inc.	\$ 785.00	Invoice #385839 - 09.16.19	SEMSD Wastewater Master Plan	\$ 156,873.45
Total				\$ 15,031,805.40			

Budget to Actual
MIDDD
As of Sept 30, 2019 = 25%

DESCRIPTION	2020 FINAL BUDGET	ENCUMBERED	ACTUAL	REMAINING BUDGET	PCT UTILIZED
REVENUE ACCOUNTS					
GLWA-OMID	46,904,696		11,747,490	35,157,206	25.0%
OMID O&M	8,121,888		2,030,475	6,091,413	25.0%
Reimbursements	200,000		19,983	180,017	10.0%
PY Revenue-Fund Balance	9,610,000			9,610,000	0.0%
Washington Twp Meter Project	250,000			250,000	0.0%
Reimb-Local Communities	10,927,799		2,731,947	8,195,852	25.0%
Interest	300,000		56,561	243,439	18.9%
Total Revenue Accounts	76,314,383	-	16,586,456	59,727,927	21.7%
EXPENSE ACCOUNTS					
GLWA-OMID	46,904,696		11,747,490	35,157,206	25.0%
OMID O&M	8,121,888		2,030,475	6,091,413	25.0%
Public Works Wastewater Disposal Division	1,721,123			1,721,123	0.0%
Office Operations/Insurance	322,800		58,528	264,272	18.1%
SCADA	196,634		53,239	143,395	27.1%
Engineering					
GLWA Assistance	20,000		10,015	9,985	50.1%
Washington Township meter	500,000			500,000	0.0%
Data Review-Aquasight	240,000		150,000	90,000	62.5%
Contribution to Segment 5 Construction/Repairs	3,850,000			3,850,000	0.0%
15 Mile Interceptor Design East of Garfield (Seg 6)	1,000,000			1,000,000	0.0%
Seg 5 Engineering Design	1,000,000			1,000,000	0.0%
Drop Shaft Repairs(MA-S-2),CT-S-2, HR-S-2, ST-S-5,UT-S-1)	5,750,000		3,490	5,746,510	0.1%
System wide odor and corrosion study	350,000		100,392	249,608	28.7%
SY-S-1 & SY-S-2 Meter Rehab	1,200,000		12,094	1,187,907	1.0%
Meter Dye Dilution Testing/As needed	100,000			100,000	0.0%
Saw Grant	-		25,561	(25,561)	100.0%
McMARS Operations	50,000		5,760	44,240	11.5%
Aquasight Operations	50,000		50,000	-	100.0%
As Needed FTCH	50,000		5,188	44,812	10.4%
As Needed CH2M	70,000		20,394	49,606	29.1%
As needed FK Engineering	55,000		83,879	(28,879)	152.5%
As Needed Wade Trim	45,000		5,968	39,032	13.3%
As Needed Metco	70,000		51,972	18,028	74.2%
As Needed Applied Science	70,000			70,000	0.0%
Emergency Grouting	-		414,226	(414,226)	100.0%
Wastewater Master Plan/Contract Capacity	500,000		83,976	416,024	16.8%
Legal Services					
Legal Services	500,000		178,838	321,162	35.8%
Clintondale PS O&M	345,000		164,711	180,289	47.7%
NGI O&M	330,000		39,894	290,106	12.1%
Meters O&M	415,000		75,967	339,033	18.3%
CS-3 O&M	226,000			226,000	0.0%
Biofilter O&M	277,500		81,543	195,957	29.4%
Contribution Life Cycle Reserve	171,700			171,700	0.0%
Interceptor O&M	1,000,000			1,000,000	0.0%
Stormwater Pump Stations	65,800		16,450	49,350	25.0%
Sewage Disposal Charges - Mt. Clemens	200,000		42,381	157,619	21.2%
Debt Service - Revenue Bonds	546,242		136,561	409,682	25.0%
Total Expense Accounts	76,314,383	-	15,648,990	60,665,393	20.5%

	O&M Balance 6/30/2019	O&M	Total 9/30/2019
Cash - Operating	25,896,373	937,466	26,833,839
Accounts Receivable			0
Assets			0
Liabilities			0
Revenues		16,586,456	16,586,456
Expenditures		15,648,990	15,648,990
			0
Equity*	25,896,373		26,833,839

Detail of 2019 Equity*

Projected reserve at 6/30/2019(No Land Sale)	12,180,673
Projected Engineering Reserve	9,610,000
Projected Sinkhole Surplus	3,400,000
Life Cycle Reserve	705,700