

NOTICE OF MEETINGS
DRAINAGE BOARD FOR THE FOLLOWING DRAINS:

1. Drainage District Policy
2. Evergreen- Farmington Sanitary Drain
3. Acacia Park CSO Drain
4. Birmingham CSO Drain
5. Bloomfield Village CSO Drain
6. Clinton River Water Resource Recovery Facility
7. George W. Kuhn Drain
8. McCulloch Drain
9. Wilmont Drain
10. Fortino Drain
11. Helaine Zack Drain
12. Levinson Relief Drains
13. Montante Drain
14. Augusta Drain
15. Borden Drain
16. Hamlin Drain
17. Holland Drain
18. Northwest Oakland Sanitary Sewer Drain

NOTICE IS HEREBY GIVEN THAT MEETINGS OF THE DRAINAGE BOARD FOR THE ABOVE-MENTIONED DRAINS WILL COMMENCE IN THE OAKLAND COUNTY PUBLIC WORKS BUILDING, ONE PUBLIC WORKS DRIVE, WATERFORD, MICHIGAN, AND VIA **MICROSOFT TEAMS** AT 2:00 P.M., ON **TUESDAY, JANUARY 24 , 2023**, TO CONDUCT NECESSARY AND APPROPRIATE BUSINESS OF THE DRAIN BOARDS. THOSE THAT WISH TO PARTICIPATE REMOTELY MAY FOLLOW THE INSTRUCTIONS ATTACHED TO THIS NOTICE. ALL BOARD MEMBERS WILL BE PARTICIPATING IN-PERSON.

DURING THE MEETING, THERE WILL BE AN AGENDA ITEM FOR PUBLIC COMMENT, DURING WHICH THE PUBLIC MAY PROVIDE INPUT OR ASK QUESTIONS OF THE BOARD. IN THE EVENT A MEMBER OF THE PUBLIC WOULD LIKE TO SUBMIT THEIR INPUT OR QUESTIONS TO BE READ AT THE MEETING BY THE BOARD CHAIRPERSON, PLEASE PROVIDE THE INPUT OR QUESTIONS IN WRITING TO STEPHANIE LAJDZIAK AT LAJDZIAKS@OAKGOV.COM. PERSONS WITH DISABILITIES THAT NEED ASSISTANCE PARTICIPATING IN THE MEETING SHOULD CONTACT STEPHANIE LAJDZIAK AT LAJDZIAKS@OAKGOV.COM.

JIM NASH
Oakland County Water Resources Commissioner
Telephone: 248-858-0958

Posted by: January 19, 2023

Microsoft Teams meeting

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1. Drainage District Policy

AGENDA

DRAINAGE BOARD FOR POLICY MATTERS

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of November 15, 2022
3. Public Comments
4. Meadowbrook insurance renewal proposal and approval of invoice
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR POLICY MATTERS**

November 15, 2022

A meeting of the Drainage Board for Policy Matters was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 15th of November 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

ABSENT: David Woodward, Chairperson of the Oakland County Board of Commissioners

Minutes of the meeting held September 27, 2022 were presented for consideration. It was moved by Markham, supported by Nash, that the minutes be approved.

ADOPTED: Yeas - 2
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

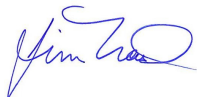
The proposed Chapter 20 meeting dates for 2023 (as attached) were presented. It was moved by Markham, supported by Nash, to approve the proposed 2022 Chapter 20 meetings dates as presented.

ADOPTED: Yeas - 2
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham.

ADOPTED: Yeas - 2
Nays - 0

There being no further business, the meeting was adjourned.

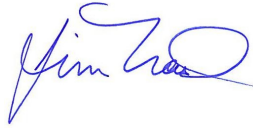


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for Policy Matters, Oakland County, Michigan, held on the 15th day of November 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for Policy Matters.



Jim Nash, Chairperson

Dated: November 15, 2022



The Water Resources Commissioner of Oakland County

Building 95 West, One Public Works Drive, Waterford, MI 48328

Proposal for Property Insurance

01/25/2023

to

01/25/2024

(as of 1/3/2023)

The Water Resources Commissioner of Oakland County

Renewal Comparison

01/25/2023 to 01/25/2024

	Expiring Chubb Jan 25, 2022-23	Renewal Chubb Option #1 Jan 25, 2023-24	change	Renewal Chubb Option #2 Jan 25, 2023-24	change
Annual Premium	\$407,601	\$452,997	+11.1%	\$445,997	+9.4%
Terrorism incl.	Yes	Yes		Yes	
Total Insured Values (TIV)	278.1M	290.5M	+4.4%	290.5M	+4.4%
Rate / \$100 of TIV	.146	.155	+6.1%	.153	+4.8%
Limits					
Policy – Per Occurrence limit	\$166.3M	\$173.3M	+4.2%	\$173.3M	+4.2%
GWK Retention Basin	\$100M	\$100M		\$100M	
Sub-limits					
Earthquake	\$25M	\$25M		\$25M	
Flood Zone B&C	\$5M	\$5M (Option #1 Includes 1200 S. Crankbrook Rd., and 274 Martin Luther King Jr Blvd. at \$5M)		\$5M	
Flood Zone A	\$2.5M	\$2.5M		\$2.5M (Option #2 Includes 1200 S. Crankbrook Rd., and 274 Martin Luther King Jr Blvd. at \$2.5M)	
Extra Expense	\$5M	\$5M		\$5M	
Loss of Utility services	\$1M	\$1M		\$1M	
Personal property – any other location	\$500k	\$500k		\$500k	
Personal Property – In Transit	\$500k	\$500k		\$500k	
Debris removal	25% of direct damage loss plus \$1M	25% of direct damage loss plus \$1M		25% of direct damage loss plus \$1M	

Renewal Comparison *(continued)*

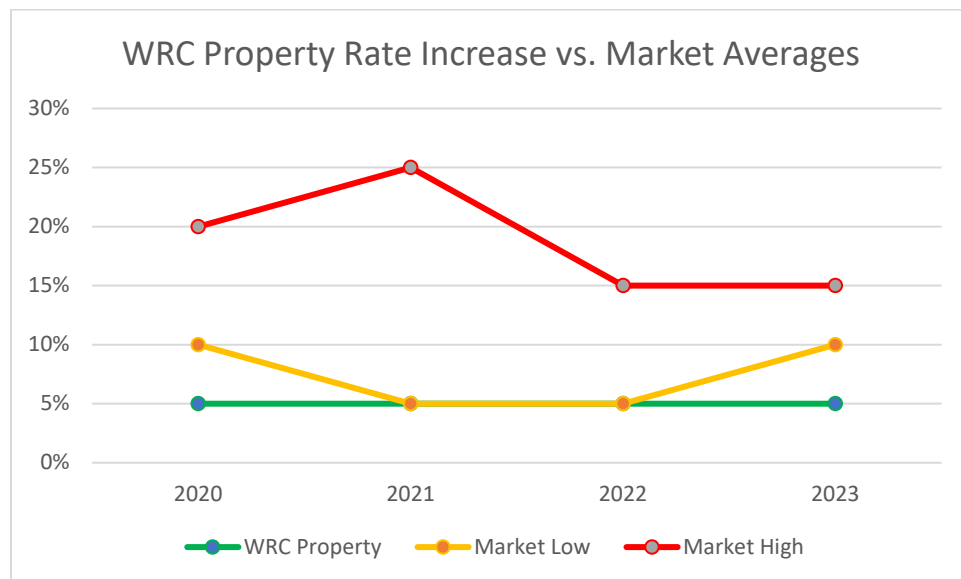
	Expiring Chubb Jan 25, 2022-23	Renewal Chubb Option #1 Jan 25, 2023-24	change	Renewal Chubb Option #2 Jan 25, 2023-24	change
Errors or Omissions	\$1M	\$1M		\$1M	
<i>Deductibles</i>					
Basic Policy	\$250k	\$250k		\$250k	
GWK	\$5M	\$5M		\$5M	
Earth Movement	\$250k	\$250k		\$250k	
Flood – note #3					
Zone C	\$250k/ 24 hours	\$250k/ 24 hours		\$250k/ 24 hours	
Zone B	\$250k/ 48 hours	\$250k/ 48 hours		\$250k/ 48 hours	
Zone A	\$500k/ 72 hours	\$500k/ 72 hours		\$500k/ 72 hours	

Oakland County Water Resources Commissioner

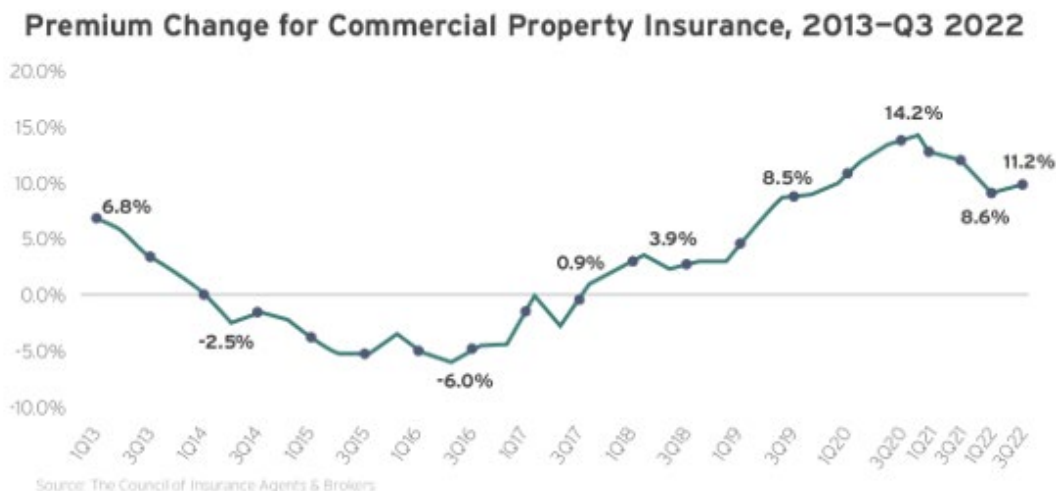
2023 Property Market Summary & Executive Overview

The past five years has caused the commercial property market to progressively harden because of continued natural disasters, persistent supply chain troubles, substantial inflationary pressures, Insurance-to-Value Considerations, and Reinsurance Capacity issues. Policyholders should expect to see commercial property premiums to increase on average, 11.2% in the 2023 policy year due these factors. Carriers are evaluating where they are exposed and adjusting were needed on rate and coverage.

Meadowbrook has worked on your behalf to keep the property rate increases at the low end of the requested rate increases carriers are seeking. We approached many carriers in the previous years for competitive alternatives and none have been able to compete with Chubb. Chubb has been very stable over the history with WRC as shown in the below line graph, producing policies at or below market average rate increases. Chubb has offered another competitive renewal for the 2023 policy term.



When compared to the below National Average Premium Change for Commercial Property Insurance table, we observe Chubb's premium increases year over year remain below the national average.



The Water Resources Commissioner of Oakland County

01/25/2023 to 01/25/2024

Premium Summary

POLICIES	EXPIRING 2022-2023	PROPOSED OPTION #1 2023-2024	PROPOSED OPTION #2 2023-2024
Property Federal Insurance Company	\$407,601	\$452,997	\$445,997
TOTAL	\$407,601	\$452,997	\$445,997

Premium Payment Plans

**Pay in Full
Agency Bill**

This document does not amend, extend, or alter coverage afforded by the policy. For a complete understanding of any insurance you purchase, you must first read your policy, declaration page, and any endorsements and discuss them with your Meadowbrook agent. A specimen policy may also be available for your review from the insurance company. Actual policy conditions may be amended by endorsement or state law."

Meadowbrook, Inc. strives to place your insurance with financially-sound insurance carriers. There are many financial rating companies who assign credit ratings to participating insurance carriers (i.e., A.M. Best Company). These ratings are the financial rating company's independent opinion about the financial stability of the insurance carrier and, as a result, vary among insurance carriers. Not all insurance carriers choose to be rated by these services. Please be aware of this rating, or lack thereof, for the insurance carrier listed on your proposal. Meadowbrook, Inc. is not responsible for, nor guarantees, the financial solvency of any insurance carrier through which it places your insurance. We are pleased to present this insurance proposal and thank you for the opportunity. We look forward to serving you in the future.

2. Evergreen-Farmington Sanitary Drain

AGENDA

DRAINAGE BOARD FOR THE EVERGREEN-FARMINGTON SANITARY DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present Memorandum from Evans Bantios, P.E. Project Engineer, dated January 24, 2023, requesting the Board approve the attached Amendment #1 contract with Meadowbrook Inc. for the increase in cost for the Owner Controlled Insurance Program (OCIP) Administrative Fee and Construction Safety Consultant and approve payment to Meadowbrook for the premium cost of \$1,520,192.75 for the OCIP
5. Present Memorandum from Jeffrey Parrott, Supervisor Right of Way, dated January 24, 2023, requesting the Board authorize the Chairperson to execute an easement on behalf of the Board
6. Present Memorandum from Joel Kohn, Environmental Planner, dated January 24, 2023, requesting the Board approve \$50,000 for environmental staff to complete sampling work within the Drainage District throughout the 2023 sampling season
7. Present Memorandum from Philip Kerby, P.E., Operations Engineer, dated January 24, 2023, requesting the Board approve the Quarton Lake Rehab as a project to the capital improvement plan with a budget of \$30,000 and award engineering services to Hubbell, Roth and Clark, Inc. in the amount of \$15,000
8. Present Construction Estimate No. 2 for Construction of the Walnut No. 3 Pump Station Rehabilitation in the amount of \$183,250.00
9. Present Construction Estimate No. 10 for the 8 Mile Road Pump Station & SSO Chamber Improvements – Phase 1 in the amount of \$649,417.04 with a transfer to the Oakland County Treasurer in the amount of \$72,157.45
10. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$18,777.53
11. Other business
12. Approve pro rata payment to Drainage Board members
13. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE EVERGREEN-FARMINGTON SANITARY DRAIN**

December 13, 2022

A meeting of the Drainage Board for the Evergreen-Farmington Sanitary Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 15, 2022, were presented for consideration. It was moved by Markham, supported by Woodward that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A motion was made by Woodward, supported by Markham, to enter into closed session at 3:14 p.m. to discuss a memorandum with the Drainage District's attorney, which is exempt from disclosure as subject to attorney-client privilege pursuant to section 13(1)(g) of the Freedom of Information Act.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash declared the closed session ended at 3:33 p.m.

It was moved by Markham, supported by Woodward, to approve resolutions to authorize the Chairperson to sign the GLWA Wastewater Disposal Services Contract and Capital Contribution Agreement, in substantially the same form as presented.

ADOPTED: Yeas - 3
Nays - 0

A memorandum from Evans Bantios, P.E., dated December 13, 2022, requesting the Board award the construction contract for the Lathrup Village Sanitary Retention Basin Improvements project to Midwest Power Systems, Inc. and authorize the Chairperson to sign the agreement for the Lathrup Village Sanitary Retention Basin Improvements between the

Drainage District and Midwest Power Systems, Inc. for a not-to-exceed amount of \$2,371,771.20 was presented. It was moved by Markham, supported by Woodward to award the construction contract for the Lathrup Village Sanitary Retention Basin Improvements project to Midwest Power Systems, Inc. and authorize the Chairperson to sign the agreement for the Lathrup Village Sanitary Retention Basin Improvements between the Drainage District and Midwest Power Systems, Inc. for a not-to-exceed amount of \$2,371,771.20 as presented.

ADOPTED: Yeas - 3
Nays - 0

A memorandum from Evans Bantios, P.E., dated December 13, 2022, requesting the Board approve the three resolutions to tentatively award a construction contract for the 8 Mile Road Pump Station and SSO Chamber Improvements Phase I, 8 Mile Road Pump Station 54" Relief Force Main Phase II, and the Lathrup Village Sanitary Retention Tank Improvements and authorize the Chairperson to sign the three resolutions and the Part III Clean Water State Revolving Funds Loan Application was presented. It was moved by Markham, supported by Woodward, to approve the three resolutions to tentatively award a construction contract for the three projects and authorize the Chairperson to sign the three resolutions and the Part III Clean Water State Revolving Funds Loan Application as presented.

ADOPTED: Yeas - 3
Nays - 0

A memorandum from Evans Bantios, P.E. Project Engineer, dated December 13, 2022, requesting the Board award the 8 Mile Road Corrective Action Plan- Phase 2 8 Mile Pump Station 54-Inch Relief Force Main project to Dan's Excavating, Inc. and authorize the Chairperson to sign the agreement for the aforementioned project between the Drainage District and Dan's Excavating, Inc. in the amount of \$10,381,154 was presented. It was moved by Markham, supported by Woodward, to award the 8 Mile Road Corrective Action Plan- Phase 2 8 Mile Pump Station 54-Inch Relief Force Main project to Dan's Excavating, Inc. and authorize the Chairperson to sign the agreement for the aforementioned project between the Drainage District and Dan's Excavating Inc. in the amount of \$10,381,154 as presented.

ADOPTED: Yeas - 3
Nays - 0

A memorandum from Evans Bantios, P.E., dated December 13, 2022, requesting the Board approve the Guaranteed Maximum Price for the 8 Mile Road Corrective Action Plan Phase 1 in the amount of \$50,177,000.25, approve Change Order No. 7 for a net increase in the amount of \$40,410,921.00 and 1,686 days, and authorize the Chairperson to sign the AIA Document A133 Guaranteed Maximum Price Amendment was presented. It was moved by Markham, supported by Woodward, to approve the Guaranteed Maximum Price for the 8 Mile Road Corrective Action Plan Phase 1, approve Change Order No. 7 for a net increase in the amount of \$40,410,921.00 and 1,686 days, and authorize the Chairperson to sign the AIA Document A133 Guaranteed Maximum Price Amendment as presented.

ADOPTED: Yeas - 3
Nays - 0

Engineering Work Order No. D-454(1) for Hubbell, Roth, and Clark Inc., regarding Construction Engineering Services for the Lathrup Village Sanitary Retention Tank Improvements for a not-to-exceed amount of \$244,250 was presented. It was moved by Markham, supported by Woodward, that Engineering Work order No. D-454(1) for Hubbell, Roth, and Clark Inc., regarding Construction Engineering Services for the Lathrup Village Sanitary Retention Tank Improvements for a not-to-exceed amount of \$244,250 be approved as presented.

ADOPTED: Yeas - 3
Nays - 0

Engineering Work Order No. D-448(2) for NTH Consultants, Ltd., regarding Construction Administrative Services & Material Testing Services for the 8 Mile Corrective Action Plan Conveyance Phase 1 and 2 for a not-to-exceed amount of \$896,505 was presented. It was moved by Markham, supported by Woodward, that Engineering Work Order No. D-448(2) for NTH Consultants, Ltd., regarding Construction Administrative Services & Material Testing Services for the 8 Mile Corrective Action Plan Conveyance Phase 1 and 2 for a not-to-exceed amount of \$896,505 be approved as presented.

ADOPTED: Yeas - 3
Nays - 0

Engineering Work Order No. D-453(2) for PMA Consultants regarding Construction Scheduling Services for the 8 Mile Conveyance Project for a not-to-exceed amount of \$237,800 was presented. It was moved by Markham, supported by Woodward, that Engineering Work Order No. D-453(2) for PMA Consultants regarding Construction Scheduling Services for the 8 Mile Conveyance Project for a not-to-exceed amount of \$237,800 be approved as presented.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$16,260.00 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$16,260.00.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.



Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Evergreen-Farmington Sanitary Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Evergreen-Farmington Sanitary Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER**
MEMORANDUM

TO: Jim Nash, Chairperson of the Evergreen Farmington Sanitary Drain Drainage Board

FROM: Evans Bantios, P.E. Project Engineer

SUBJECT: Premium Fee and Amendment #1 of contract to Meadowbrook, Inc for Owner Controlled Insurance Program for Evergreen Farmington Sanitary Drain Drainage District Projects

DATE: January 24, 2023

Meadowbrook, Inc. (MIA) has a contract to be the insurance consultant, agency services and construction safety consultant services for the following projects: 8 Mile Road Corrective Action Plan (CAP) Phase 1 and Phase 2; Lathrup Village SRT Improvements; and Walnut Lake Pump Station No. 1 CAP. MIA will provide an Owner Controlled Insurance Program (OCIP) for the projects.

They have gone out to market for commercial general liability; excess liability; environmental liability; builder's risk; owner protective professional indemnity (OPPI) insurance. This insurance policy will be used instead of obtaining insurance coverage from the various contractors who will work on the projects. A copy of the insurance document is attached to this memo for your review. The premium for the OCIP is \$1,520,192.75. This cost was included in the overall project budget.

In addition, MIA requests an addendum to their contract for the administrative fee and the construction safety consultant. The original and revised administrative fees and construction safety consultant budget are shown below. In addition, the amendment is getting updated to match the 4 ½ to 5 years construction schedule. The original budget contract was based on three (3) years of construction. MIA is asking for an increase in the yearly administrative fee from \$130,000 to \$150,000. This is due a significant increase in construction cost and increase from three projects to four projects. Also, MIA is asking for an increase in the hourly rate of the construction safety consultant from \$90 per hour to \$97 per hour and from a 5 percent rate increase every two years to 5 percent annually. The proposed fee schedule for the scope of work in the contract is shown below.

Summary of Estimated Cost

	Original Budget	Amendment # 1
Marketing & Set Up	\$27,500	\$27,500
OCIP Administration Fee	\$390,000	\$750,000
Construction Safety Consultant	\$690,000	\$1,080,000

Requested Action: Approve the attached Amendment #1 contract with Meadowbrook Inc. for the increase in cost for the OCIP Administrative Fee and Construction Safety Consultant. Approve the payment to Meadowbrook for the premium cost of \$1,520,192.75 for the OCIP.

Amendment 1

Amendment 1 is effective January 13, 2023 and is attached to and made part of the Contract for Insurance Consultant, Agency Services, and Construction Safety Consultant Services for the 8 Mile Road Outlet Conveyance, Lathrup Village SRT Improvements, and Evergreen Road Conveyance – Walnut Lake Pump Station Correction Plan Projects OCIP ("Agreement") effective February 1st, 2022 by and between Meadowbrook, Inc. ("MIA") and Oakland County Water Resources Commissioner ("OWNER"). This Amendment may refer to MIA and Owner individually as Party and collectively as Parties.

In consideration of the mutual covenants in this Amendment, the Parties agree the following paragraphs of the Agreement are amended as follows:

1. Proposed Projects:

The following PROPOSED PROJECTS: table is removed:

Project Name	Bid Date	Construction Start	Years Duration	Construction Estimate
8 Mile Road Outlet Conveyance	Nov-2022	Dec-2022	May-2025	\$25,989,300
Lathrup Village SRT Improvements	Aug-2022	Nov-2022	May-2025	\$1,456,582
Evergreen Road Conveyance – Walnut Lake Pump Station Correction Plan	Aug-2022	Nov-2022	May-2025	\$5,000,000
TOTAL				\$32,445,882

The following PROPOSED PROJECTS: table is added:

Project Name	Bid Date	Construction Start	Years Duration	Construction Estimate
8 Mile Road Outlet Conveyance – CAP Phase 1	Nov-2022	Jan-2023	Aug-2027	\$50,177,000
8 Mile Road Outlet Conveyance – CAP Phase 2	Nov-2022	Aug-2023	June-2024	\$10,381,154
Lathrup Village SRT Improvements	Aug-2022	Jan-2023	Feb-2024	\$2,215,771
Evergreen Road Conveyance – Walnut Lake Pump Station Correction Plan	Aug-2022	Jan-2023	May-2025	\$3,100,000
TOTAL				\$65,873,925

2. Definitions:

Section 12. **PROJECTS** of the Definitions section is removed in its entirety and replaced with the following language:

12. **PROJECTS.** 8 Mile Road Outlet Conveyance – CAP Phase 1, 8 Mile Road Outlet Conveyance – CAP Phase 2, Lathrup Village SRT Improvements, Evergreen Road Conveyance – Walnut Lake Pump Station Correction Plan or any additional sites mutually agreed upon in a written addendum.

3. Section C – Compensation for Consulting Services and Term of Projects

Section C is removed in its entirety and replaced with the following language:

SECTION C- COMPENSATION FOR CONSULTING SERVICES AND TERM OF PROJECTS

1. Compensation

For the performance of the services to be provided hereunder, OWNERS agree to pay MIA the following fees:

Marketing and Setup Fee – a one time, lump sum fee to be billed at execution of the contract: \$27,500

OCIP Administration
Fee - Annually
\$150,000

The first OCIP Admin Fee installment payable at inception of construction for the **PROJECTS** and billed every 12 months through full duration of the Projects which are expected to be complete in three years and to continue through project OCIP closeout. Any partial years' fee will be estimated pro-rata and paid in advance.

Core OCIP insurance policy (commercial general liability) and excess liability will be placed without MIA taking commission, and MIA will take ordinary commissions from premiums paid for builders' risk, environmental liability, OPPI and other policies, which may be required to be placed and maintained for the project.

MIA will use its resources and make every effort to resolve any disputes with the Carriers associated with the OCIP. However, when necessary, consultative legal services for disputed claims or other disputed matters with insurance companies, or any other legal requirements, the associated claims expenses, and other expenses that may not be payable through such insurance companies will be paid by the OWNERS.

MIA shall be compensated for the Construction Safety Consultant services contemplated in Exhibit 1 – Duties, Responsibilities, and Limitations of Construction Safety Consultant, on a time and material basis not to exceed \$240,000 annually. MIA shall be paid by Owner each quarter in advance for providing the Services. Owner shall pay MIA for a guaranteed minimum of 40 hours of work each week at a standard rate of \$97 per hour for the Services. On each bill for the Services, MIA shall bill Owner for the expenses incurred in the previous three (3) months in addition to the advanced payment for the next three (3) months of Services. On each bill, MIA shall also bill Owner at the standard rate per hour for any work exceeding the guaranteed minimum of 40 hours a week. Upon execution of this Contract, OWNER shall pay for the initial 3 months of work.

Thereafter, MIA will bill OWNER every three months beginning after the execution of the contract for the Services.

The Services are to be provided until Owner provides ninety (90) days advanced written notice or terminates the Agreement. After receipt of this notice, final fees will be pro-rata based on the actual usage period. Every year after the effective date of this Amendment, MIA is entitled to increase the standard rate by an additional 5%.

On-Site services will require the establishment of an office, office equipment, and other necessary appurtenances, all of which shall be provided as follows:

- MIA will provide a computer, printer, other office equipment and office supplies.
 - OWNER will provide an office, internet connection, office furniture and utilities for the duration of the project.
 - OWNER also agrees to reimburse MIA for providing telephone (office and Cellular), employee parking, mileage as set by the Internal Revenue Service, and other site expenses of MIA including any required safety equipment, supplies and gear appropriate to the site.
2. This Agreement will be for the full term of the PROJECTS unless otherwise agreed to in writing by MIA and OWNERS or terminated in accordance with the provisions herein.

All other terms and conditions of the Agreement remain unchanged.

The Parties have caused this Amendment to be executed by its authorized representatives.

SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the day and year first referenced in this Amendment.

WITNESSES:

Evergreen Farmington Sanitary Drain
Drainage District

By: Jim Nash

Its: Chairperson

Meadowbrook, Inc.

David N. Sheeran

By: David N. Sheeran

Its: President - Agency

WITNESSES:

Meadowbrook, inc.

Phillip Anderson

By: Phillip Anderson

Its: Account
Manager

Evergreen-Farmington Sanitary Drain Drainage District

Owner Controlled Insurance Program Proposal for:

**8 Mile Road Outlet Conveyance
(Phase 1 & 2), Lathrup Village SRT
Improvements, and Evergreen Road
Conveyance – Walnut Lake Pump
Station Correction Plan Projects**

1/23/2023 to 1/23/2028

(dated 1/10/2023)

Evergreen-Farmington Sanitary Drain Drainage District

Meadowbrook Agency Service Team

GENERAL INFORMATION

toll free - 800 / 482-2726
switchboard/after hours: 248 / 358-1100
website: www.meadowbrook.com

PRODUCER

Sal Saputo
Executive Vice President
tel - 248 / 204-8163
cell - 248 / 943-1317
e-mail: ssaputo@meadowbrook.com

MARKETING

Patrick Kennedy
Account Executive
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e-mail: patrick.kennedy@meadowbrook.com

PRIMARY CONTACT

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e-mail: Phillip.Anderson@meadowbrook.com

BACK UP CONTACT

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GROUP BENEFITS

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President
Agency Operations
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cell - 248 / 361-0084
e-mail: dave.sheeran@meadowbrook.com

PERSONAL LINES

Kelly Arnold
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e-mail: kelly.arnold@meadowbrook.com

CLAIMS REPORTING

*All claims - except Workers Compensation**

It is our ongoing mission to provide effective, efficient solutions for your claims servicing needs. In keeping with the goal of offering world-class claims service and enhancing your experience, we've established two new, centralized claims reporting contacts.

Telephone:

(888) 965-3527

Email:

Agencyclaims@meadowbrook.com Workers Compensation claims will continue to be reported directly to your insurance company.

Evergreen-Farmington Sanitary Drain Drainage District

1/23/2023 to 1/23/2028

Named Insureds

Evergreen-Farmington Sanitary Drain Drainage District

Scheduled Project

Project Name	Construction Value (Hard Costs)
8 Mile Road Outlet Conveyance – CAP Phase 1	\$50,177,000
8 Mile Road Outlet Conveyance – CAP Phase 2	\$10,381,154
Lathrup Village SRT Improvements	\$2,215,771
Evergreen Road Conveyance – Walnut Lake Pump Station Correction Plan	\$3,100,000

Evergreen-Farmington Sanitary Drain Drainage District

Premium Summary

1/23/2023 to 1/23/2028

INSURANCE POLICIES	PROPOSED PREMIUM
Builder's Risk ACE American Ins. Co.	\$448,150.00 \$65.8M Hard Costs \$6.5M Soft Costs
General Liability Navigators Specialty	268,598.00
Excess Liability \$5M X Primary Navigators Specialty	186,224.00
Excess Liability \$10M X \$5M Berkley Specialty Insurance Co.	138,312.00
Excess Liability \$10M X \$15M Scottsdale Insurance Company	89,646.00
Excess Liability \$12.5M P/O \$25M X \$25M Endurance American Specialty Ins. Co.	65,917.00
Excess Liability \$12.5M P/O \$25M X \$25M Westfield Specialty Insurance Company	65,917.00
Contractors Pollution Liability AIG Specialty Ins. Co.	93,428.75 \$10M Limit
Owners Protective Professional Indemnity (OPPI) Berkley Assurance Company	164,000.00 \$10M Limit \$1M Defense Outside
Total Premium:	\$1,520,192.75

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER**

MEMORANDUM

TO: Jim Nash, Chairperson, Evergreen-Farmington Sanitary Drain

FROM: Jeffrey S. Parrott, Supervisor Right of Way

SUBJECT: Easement for Sam's Club Watermain

DATE: January 24, 2023

The district purchased a portion of the Sam's Club property in Southfield north of the 8 Mile pump station property for the construction of a generator pad associated with the 8 Mile Corrective Action Plan project. Since then, Sam's Club representatives have notified staff of the existence of a private watermain located adjacent and north of the property now owned by the district. Sam's Club has requested an easement for the future operation and maintenance of this utility.

An easement has been prepared for this purpose and is attached.

Recommended Action: Authorize the chairperson to execute an easement on behalf of the board.

EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that the **EVERGREEN-PARMINGTON SANITARY DRAIN DRAINAGE DISTRICT**, a Michigan Statutory Corporation, GRANTOR, whose address is the Office of the Oakland County Water Resources Commissioner (“WRC”), One Public Works Drive, Waterford, Michigan 48328-1907 for and in consideration of the sum of **ONE DOLLAR (\$1.00)** receipt of which is hereby acknowledged, paid to them by the **SAM’S REAL ESTATE BUSINESS TRUST**, a Delaware Statutory trust (“Sam’s”) and **WALMART INC.**, a Delaware corporation (“Walmart” and collectively with Sam’s, “Grantee”) each having an address of 702 S.W. 8th Street, Bentonville, AR 72716 and with notices sent to 2001 S. E. 10th Street, Bentonville, Arkansas 72716-0550, Attention: Portfolio Manager of Michigan, GRANTEE, GRANTOR does hereby grant to GRANTEE the right to operate, maintain, repair or replace a water supply system, in accordance with the terms and conditions set forth herein:

RECITALS:

A. The GRANTOR is the owner of certain real property described as follows (the “Premises”):

Part of the Southeast 1/4 of Section 33, T01N, R10E, City of Southfield, Oakland County, Michigan, Commencing at the South 1/4 corner of said Section 33; thence the following eight (8) courses N 11°05’00” W, 104.11 ft. along the centerline of Berg Road (66 feet wide) to the north right-of-way line of Eight Mile Road (204 feet wide) and S 89°32’11” E, 1150.86 ft. along the north right-of-way line of Eight Mile Road (204 feet wide) and N 04° 45' 16" W, 81.77 ft. and S 89° 32' 11" E, 1.67 ft. and N 02° 41' 21" W, 28.56 ft. and N 87° 12' 03" E, 116.96 ft. and N 04° 45' 16" W, 14.68 ft. and S 89° 32' 11" E, 93.20 ft. to the POINT OF BEGINNING; thence continuing S 89° 32' 11" E, 80.00 ft.; thence N 00° 27' 49" E, 35.00 ft.; thence N 89° 32' 11" W, 80.00 ft.; thence S 00° 27' 49" W, 35.00 ft. to the point of beginning.

***Tax Identification Number: 24-33-452-029 (Part of)
Commonly known as: 22500 W 8 Mile Road, Southfield, MI 48033***

and,

B. The GRANTEE desires to acquire from the GRANTOR certain rights to the Premises in order to operate, maintain, repair or replace a water supply system.

IT IS THEREFORE AGREED:

1. **Grant of a Permanent Easement.** Grantor hereby grants to Grantee a perpetual easement described as follows:

North 5.00 ft of the above-described premises

2. **Purpose of the Easement(s).** The permanent easement granted herein shall be used for the purpose of the operation, maintenance, repair or replacement of the system constructed.

3. **General Conditions.**

a. GRANTOR agrees not to build or convey to others permission to build any permanent structures on the above-described permanent easement.

b. Except as otherwise agreed in writing between the GRANTOR and GRANTEE, GRANTEE may remove all trees and shrubbery within the permanent easement but shall be required to replace trees and shrubbery that are removed.

c. Except as otherwise provided herein, if the Premises shall be disturbed by reason of the exercise of any of the foregoing powers, then the Premises shall be restored to substantially the condition that existed prior to entering upon said Premises by the GRANTEE, its contractors, agents or assigns.

d. GRANTOR retains, reserves, and shall continue to enjoy the use of the permanent easement for any and all purposes which do not interfere with, obstruct the use of or prevent the use by GRANTEE.

e. It is understood that the easement, rights, and privileges granted herein are nonexclusive, and GRANTOR reserves and retains the right to convey similar easements and rights to such other persons as GRANTOR may deem proper provided such similar easements do not affect GRANTEE'S Easement.

f. This Easement shall be binding upon and inure to the benefit of the Parties hereto, their heirs, representatives, successors and assigns.

g. A map of the above-described Easement is attached hereto and made a part thereof.

h. This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument shall be of no force and effect. Any modification of this Easement must be in writing and must be signed by the party to be charged.

i. This Easement is made and entered into in the State of Michigan and shall in all respects be interpreted, enforced and governed under the laws of the State of Michigan. The language of all parts of this Easement is intended to and, in all cases, shall be construed as a whole according to its fair meaning, and not construed strictly for or against any party.

j. It is further understood and agreed between the Parties that the terms and conditions herein are contractual and are not a mere recital and that there are no other agreements, understandings, contracts, or representations between GRANTOR and GRANTEE in any way related to the subject matter hereof, except as expressly stated herein.

k. If any provision of this Easement or its application to any person or circumstance shall to any extent be invalid or unenforceable, the remainder of this Easement shall not be affected and shall remain valid and enforceable to the fullest extent permitted by law.

l. It is understood and agreed between the Parties that a failure by either Party to fulfill a condition or term set forth in this Easement shall not result in the extinguishment of the easement rights granted herein or constitute a waiver of such term or condition.

(Remainder of this page intentionally left blank)

IN WITNESS WHEREOF, the GRANTOR has hereunto affixed their signatures this _____ day of _____, 2023.

DRAINAGE BOARD for the EVERGREEN-FARMINGTON SANITARY DRAIN DRAINAGE DISTRICT, a Michigan Statutory Corporation

WITNESS OR ATTEST:

By: _____
Jim Nash, Chairperson

ACKNOWLEDGMENT

STATE OF MICHIGAN)
)
COUNTY OF OAKLAND)

On this _____ day of _____, 2023, before me, the undersigned notary public in and for said County and State, personally appeared Jim Nash, to me personally known, who, being by me duly sworn, did say that he is Chairperson of the Drainage Board for the Evergreen-Farmington Sanitary Drain Drainage District, a Michigan Statutory Corporation, and that said instrument was signed, sealed and delivered on behalf of said corporation.

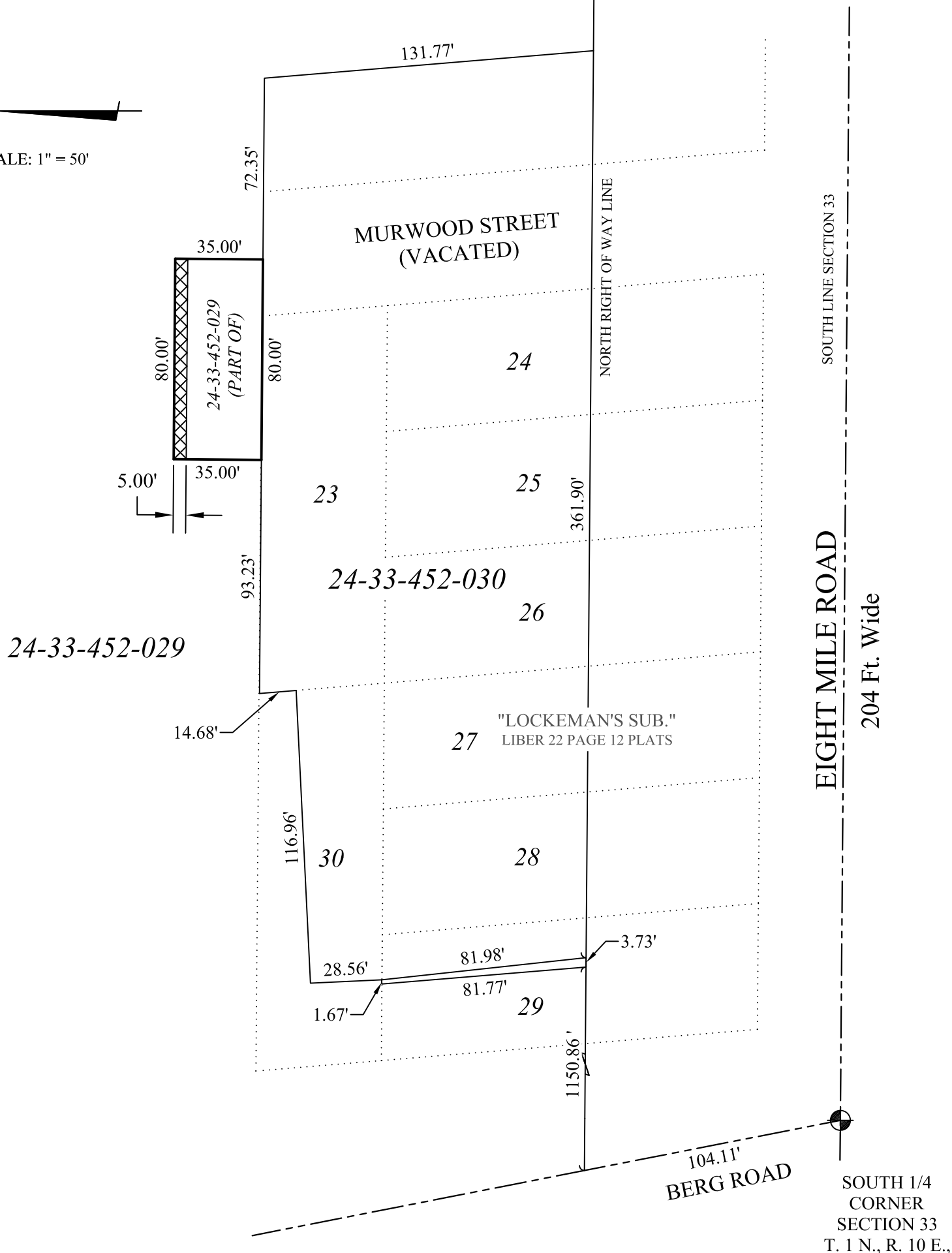
WITNESS MY HAND and notarial seal subscribed and affixed in said County and State the _____ day of _____, 2023.

_____, Notary Public
_____, County, _____
My Commission Expires: _____
Acting in County of _____

Instrument drafted by and return to:

Jeffrey S. Parrott, Supervisor Right of Way
Office of the Oakland County Water Resources Commissioner
Building 95 West
One Public Works Drive
Waterford, MI 48328-1907

SCALE: 1" = 50'



01/12/2023

EASEMENT PARCEL NO. 1 DWG. 1 OF 1

SIDWELL NO. 24-33-452-029 (Part of)

Part of the Southeast 1/4 of Section 33, T01N, R10E, City of Southfield, Oakland County, Michigan

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER****MEMORANDUM**

TO: Jim Nash, Chairperson
Evergreen-Farmington Sanitary Drain Drainage District

FROM: Joel Kohn, Environmental Planner

SUBJECT: Great Lakes Water Authority Investigational Grab Sampling Program

DATE: January 24, 2023

For the last year, the Great Lakes Water Authority (GLWA) has facilitated the start up of a regional investigational grab sampling program to be conducted for a minimum of 5 years. With the aide of a GLWA maintained GIS dashboard, the goal of the project is to share data regardless of jurisdiction to improve water quality in Southeast Michigan by identifying where unknown sources of sewage are impacting our waterways.

We have chosen approximately 50 sites around the GLWA operating area of Oakland County, with 18 sites within the Evergreen-Farmington Sanitary Drain Drainage District.

Environmental Unit staff will be sampling for E. coli on a weekly basis throughout the spring and summer of 2023 regardless of weather conditions with a minimum of one round of Microbial Source Tracking (MST) for each site. Sampling results will be sent to GLWA to be inputted into there regional data mart which will be available to Counties and local communities throughout the region but not available for public viewing at this time. In Oakland County, we will reach out to local communities where high E. coli sampling results occur to continue work to resolve issues.

Outside the GLWA program, environmental unit staff will also be capturing other nutrient results during wet weather events using recently purchased autosamplers This data will be used for internal use only and will not be currently shared with the regional audience at this time.

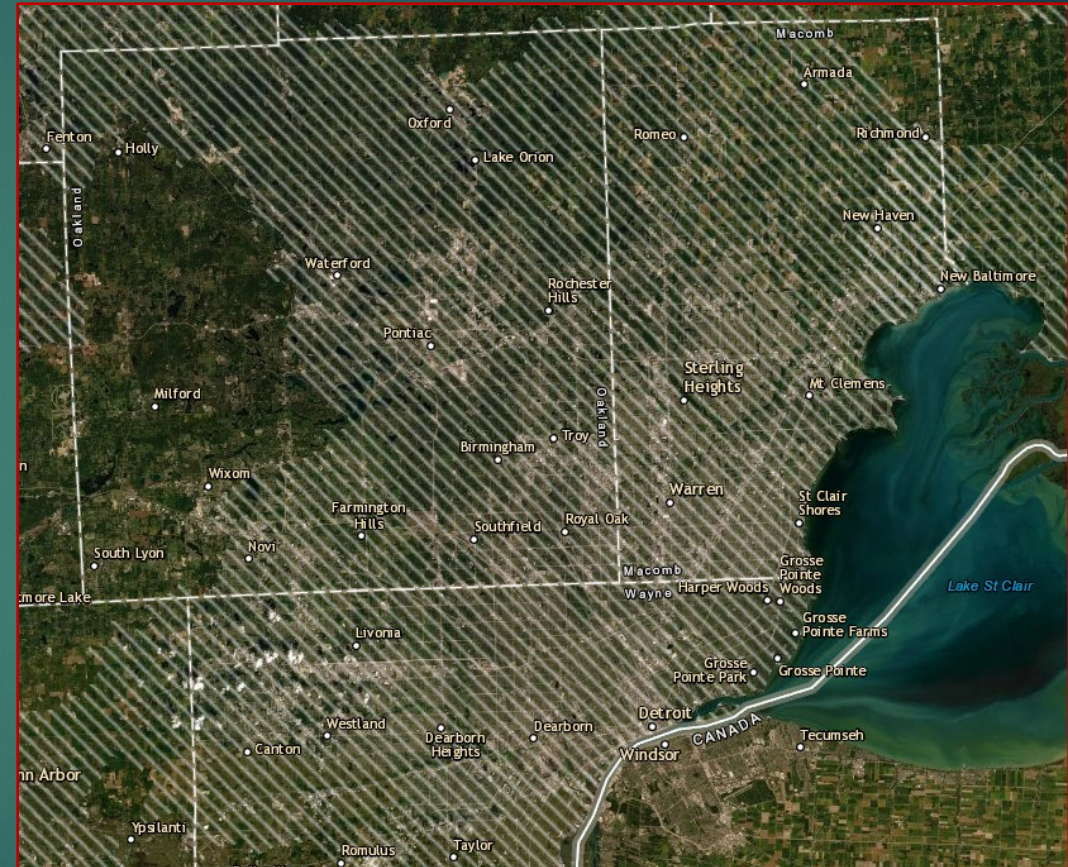
This information with a short PowerPoint was presented at the April 14, 2022, Evergreen-Farmington Drain Community meeting without any questions or concerns from the local communities.

Recommended Action: Approve \$50,000 for environmental staff to complete sampling work within the Evergreen-Farmington Drain Drainage District throughout the 2023 sampling season.

E. coli Impairments across the Region

► Sources:

- Sewage-related
- Animal-related



Goal

- Improve water quality in SE Michigan by identifying where unknown sources of sewage are impacting our waterways



Potential Sewage Sources

- ▶ Illicit connections from sanitary sources to storm drains
- ▶ Infiltration/overflows from sanitary sewers
- ▶ Underperforming septic systems
- ▶ Unexpected discharges from combined sewers

Rationale



Better quality of life in Southeast Michigan



Cleaner water at a better cost



Local control of permit requirements

Objectives

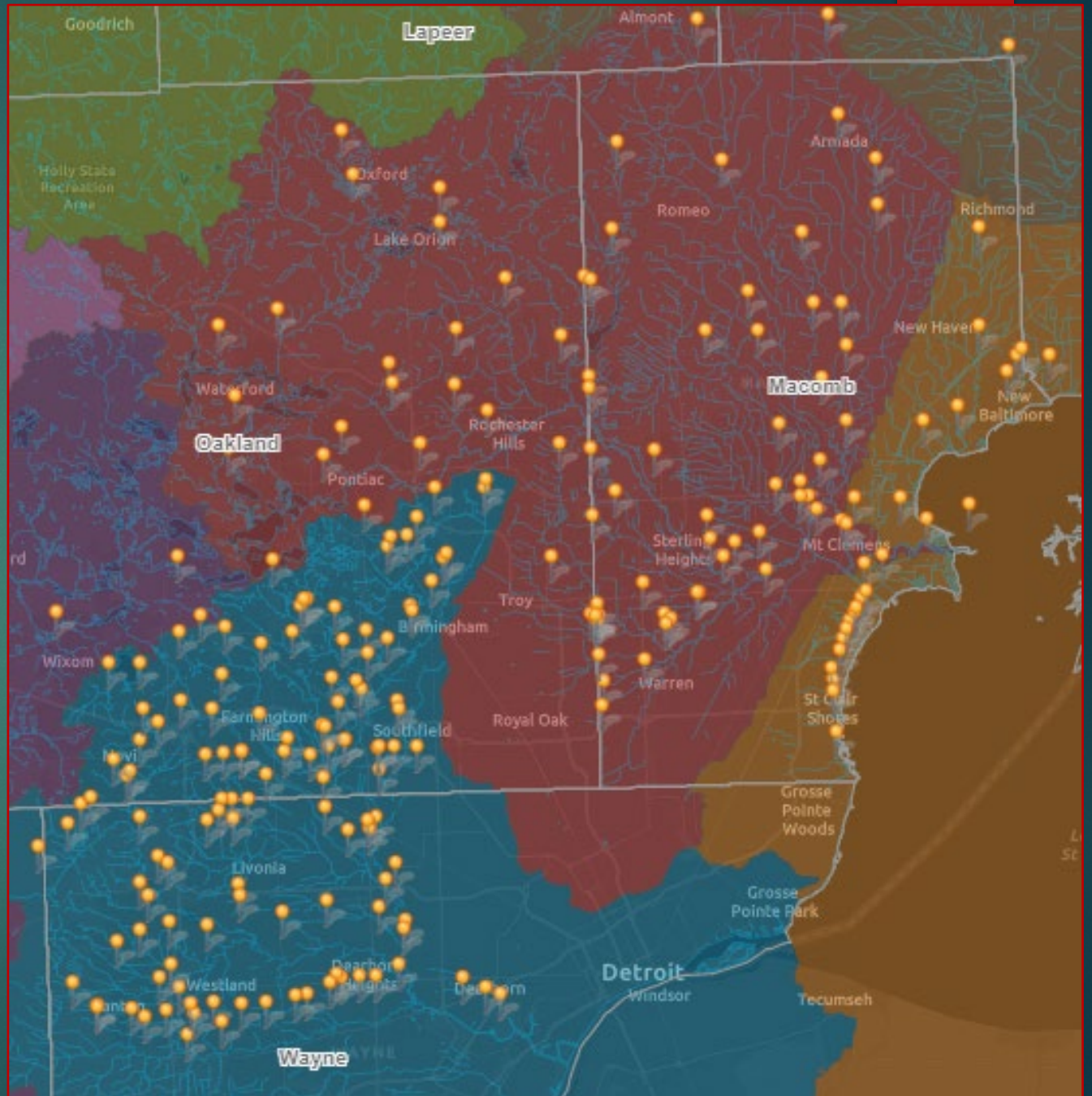
- ▶ Identify stream segments impacted by sewage
- ▶ Identify storm drains impacted by sewage
- ▶ Support permit implementation (stormwater and wastewater)
- ▶ Measure progress for water quality improvements
- ▶ Provide data to regional stakeholders via online platform
- ▶ Create a regional hub for utility information

Sampling Sites, Methods, Frequency

- ▶ Roughly 200 sites selected within GLWA Wastewater Service Area
- ▶ Routine weekly instream samples for *E. coli*
 - 5 months of data collection
- ▶ *E. coli* and human biomarker testing at outfalls within priority stream segments



Working Map of Locations



Data Response and Data Access

- ▶ **Immediate when instream samples above predetermined thresholds and source unknown**
 - Municipalities/Counties – screen outfalls for sewage impacts and assess CSO infrastructure
- ▶ **For high priority stream segments**
 - Watershed Hub – screen outfalls (3 times) for sewage impacts
 - Municipalities/Counties – investigate storm sewers with sewage impacts
- ▶ **Weekly data updates to the watershed hub mapper**
- ▶ **Sanitary and storm infrastructure GIS data available in centralized location**

Example Timeline

Year	Area 1 (Rouge or Clinton Watershed)	Area 2 (Rouge or Clinton Watershed)
0	Develop sampling and quality control plans	
1	<ul style="list-style-type: none">• Conduct instream sampling• Investigate sites with v. high <i>E. coli</i>	Same as Area 1 but delayed by one year
2	<ul style="list-style-type: none">• Determine priority stream segments• Conduct outfall screening in priority segments	
3	<ul style="list-style-type: none">• Begin in-system investigations in priority drains	
4	<ul style="list-style-type: none">• Continue in-system investigations in priority drains	
5	<ul style="list-style-type: none">• Continue in-system investigations in priority drains, if needed	
6	<ul style="list-style-type: none">• Repeat	

Participant Benefits

Will identify the most egregious E. coli sources - which are manageable

Will allow communities to target/prioritize their permit requirements. Examples:

- Stormwater permittees: IDEP investigations, TMDL sampling
- Wastewater permittees: Manage more wet weather flows?
- Collection system permittees: Inspections and maintenance

Will allow communities prioritize infrastructure issues for future funding

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER****MEMORANDUM**

TO: Jim Nash, Chairperson
Evergreen-Farmington Sanitary Drain Drainage District

FROM: Philip Kerby P.E., Operations Engineer

SUBJECT: 27-inch Sanitary Sewer Rehabilitation
W. Maple Rd. at Quarton Lake in The City of Birmingham

DATE: January 24, 2023

WRC performed CCTV inspection of the existing 27-inch sanitary sewer along the east side Quarton Lake North of W. Maple Rd. in the City of Birmingham. It has been determined that approximately 1,200 feet of the reinforced concrete pipe (RCP) requires rehabilitation after review of the inspection video.

This stretch of sewer was put into service in 1960. The inspection video shows deterioration of the pipe wall surface, exposed reinforcement, and heavily agitated flow. As such, it is recommended that an inspection of the sewer with the flow bypassed be performed to best determine the appropriate rehabilitation method for this stretch of pipe.

This rehabilitation was planned this fiscal year in the EFSD Long Range Plan as a capital improvement project. It is recommended to approve \$30,000 for the preliminary design phase of this project. This phase will include conducting a CCTV inspection of the sewer while the flow is being bypassed and development of rehabilitation alternatives for consideration.

We are recommending award of engineering services to Hubbell, Roth & Clark, Inc. in the amount of \$15,000 per the attached proposal and the terms of their existing contract with the County.

The following is a breakdown of the estimated expenses for the design phase of this project:

Contracted Services:	\$15,000
WRC Engineering:	\$ 5,000
Contingency:	<u>\$10,000</u>
TOTAL:	\$30,000

RECOMMENDED ACTION: Approval to add EFSD Quarton Lake Rehab as a project to the capital improvement plan with a budget of \$30,000 AND award engineering services to Hubbell, Roth & Clark, Inc. in the amount of \$15,000.



Heavy Agitation



Exposed Reinforcement



November 17, 2022

Oakland County Water Resources Commissioner
One Public Works Drive
Waterford, Michigan 48328

Attn: Mr. Drew Sandahl, P.E.

Re: Proposal for Design Engineering Services
EFSD Quarton Lake Road Sanitary Sewer Rehabilitation

HRC Project No. 20220986

Dear Mr. Sandahl:

As requested, HRC is pleased to provide this proposal for engineering services related to the rehabilitation of a sanitary interceptor that is part of the Evergreen-Farmington Sewage Disposal System (EFSDS). We would propose that these services be provided under the terms and conditions of our existing as-needed Engineering Services Contract.

BACKGROUND AND PROJECT UNDERSTANDING

Based on a recent conversation, we understand that there is approximately 1,100 lineal feet of an existing sanitary interceptor sewer was recently inspected and requires rehabilitation. We also understand that the sewer is located near Quarton Lake in the City of Birmingham, is approximately 27" in diameter, and requires rehabilitation to address defects found during the inspection.

SCOPE OF SERVICES

Task 1 – Receive Data and Review of Existing Conditions

This task will include analyzing the existing CCTV data and other record information to assess the concerns presented by OCWRC. HRC will work with the City of Birmingham and OCWRC to determine if there are other issues or concerns in the immediate vicinity that should be considered as part of any rehabilitation projects.

HRC will then prepare a technical memo describing the situation with alternatives for OCWRC's consideration. Budgetary costs, schedules and required coordination and permitting will be presented for review. A recommendation for a construction project for rehabilitation of the affected sanitary interceptor will be provided.

In a cursory review of the CCTV already provided, we were concerned that the high water levels and turbulence may be concealing potentially significant defects in the invert of the interceptor sewer. A consideration may be to temporarily divert flow to allow for a more thorough inspection before undertaking the next Task 2 for design of the required rehabilitation.

Task 2 – Design Engineering

After review of the available inspections and confirming the proposed rehabilitation method, HRC will begin the design engineering phase to prepare plans and specifications and assist WRC with solicitation of contractor bids for the project. While the effort needed for the design phase will vary depending on the project conditions, such as exact location, need for bypass pumping, and coordination with other infrastructure, we will develop a proposed construction cost estimate and confirm our design budget. HRC's services during the design phase will include Project Management & Coordination,

Supplemental Topographic Survey, Easement/ROW Support, Plans & Specifications, Permit Assistance (for RCOC and city Birmingham as we assume EGLE Part 41 permit is not required for this rehabilitation project), and Bidding Assistance.

Project Budget

Based on the Project Scope as described, the recommended total Professional Engineering Services budget for Task 1 of this project is **\$15,000**. This amount will not be exceeded without prior WRC authorization. WRC will be billed for actual services rendered at our standard hourly rates, in accordance with our current Engineering Services Agreement.

If this proposal is deemed acceptable to WRC, please sign and return one copy to this office and retain one for your files.

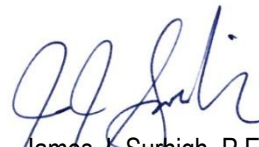
If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.



Daniel W. Mitchell, P.E.
President



James J. Surnigh, P.E.
Associate

pc: WRC; Phil Kerby
HRC; Matt Hughes, File

Accepted By:

Signature: Philip Kerby

Written Name: Philip Kerby

Title: CE III

Dated: 11/22/2022

Sanitary Sewer Capital Improvement Plans & Rehabilitation Projects



CONTACT INFORMATION:

City of Farmington Hills

Ms. Karen Mondora

HRC Project Number

20210570

Year Completed

2022

City of Birmingham

Ms. Melissa Cotta

HRC Project Number

20210825

Year Completed

2022

City of Marysville

Mr. Barry Kreiner

HRC Project Number

20201050

Year Completed

2022

EFSD South Evergreen Interceptor Rehabilitation

Mr. Evans Bantios (OCWRC)

HRC Project Number

20200195

Year Completed

2022

Bloomfield Twp.

Ms. Olivia Olsztyn-Budry

HRC Project Number

20190385 / 20210299

Year Completed

2020 / 2022

Royal Oak Twp.

Mr. Drew Sandahl (OCWRC)

HRC Project Number

20210192

Year Completed

2022

SERVICES DESCRIPTION

Hubbell, Roth & Clark, Inc. (HRC) has many years of experience in sanitary sewer rehabilitation and replacement projects, including CCTV inspection and assessment, slip-lining, cured-in-place pipe (CIPP), and point sewer repairs. These include both emergency/high priority repair projects and developing and implementing multiyear capital improvement projects to reduce overall risk in the system by prioritizing rehabilitation of assets that have the greatest probability and consequence of failure.

HRC also has extensive design experience with underground "trenchless" technologies including, but not limited to, large diameter tunnel boring operations (up to 12 feet in diameter); pipe bursting; cured in place pipe relining systems (CIPP); and directional boring projects. We currently provide trenchless technology engineering services to over 40 satisfied communities throughout southeastern Michigan. We have staff certified by the National Association of Sewer Service Companies (NASSCO) in their Pipeline Assessment Certification Program (PACP®), Lateral Assessment Certification Program (LACP®), Manhole Assessment Certification Program (MACP®), and Inspector Training for Cured-In-Place Pipe Program (ITCP-CIPP®).

**HRC HAS BEEN RECOGNIZED BY TRENCHLESS TECHNOLOGY AS ONE OF THE
NATION'S TOP 50 TRENCHLESS TECHNOLOGY DESIGN FIRMS SINCE 2007.**

RECENT KEY PROJECTS:

5-Year Capital Improvement Plan and 2021 Sanitary Sewer Rehabilitation Farmington Hills, Oakland County

HRC provided engineering assistance related to the development and implementation of a sanitary sewer rehabilitation program for the City of Farmington Hills' sewage disposal system, which is operated and maintained by the office of the Oakland County Water Resources Commissioner. The project included reviewing existing recommendations for rehabilitation of the system and prioritizing specific projects based on risk and coordination with other infrastructure, such as planned road, storm sewer, and drinking water projects. HRC developed a 5-year Capital Improvement Plan that included rehabilitation projects to be implemented with a budgetary goal of approximately \$1M to \$2M per year.

HRC then developed project documents and assisted with bidding and construction administration for a Sanitary Sewer Rehabilitation project that included approximately 17,000 lineal feet of CIPP lining and open-cut pipe replacement for sewers ranging between 8" and 15" in diameter. A key aspect of this project was communicating with residents and managing quality control and styrene levels for the CIPP work.

Sanitary Sewer Capital Improvement Plans & Rehabilitation Projects

ADDITIONAL RECENT SEWER LINING AND REHABILITATION PROJECTS:

- ≡ [City of Bay City](#)
- ≡ [City of Battle Creek](#)
- ≡ [City of Bloomfield Hills](#)
- ≡ [City of Brighton](#)
- ≡ [City of East Lansing](#)
- ≡ [City of Grosse Pointe Farms](#)
- ≡ [City of Howell](#)
- ≡ [City of Jackson](#)
- ≡ [City of South Lyon](#)
- ≡ [City of Southfield](#)
- ≡ [City of Sterling Heights](#)
- ≡ [City of St. Clair Shores](#)
- ≡ [City of Troy](#)
- ≡ [City of Traverse City](#)
- ≡ [Village of Grosse Pointe Shores](#)
- ≡ [Delhi Township](#)
- ≡ [Downriver Utility Authority](#)
- ≡ [General Motors](#)
- ≡ [Southern Clinton County Municipal Utilities Authority](#)
- ≡ [Wayne County](#)

2021 Sewer Rehabilitation Project

City of Birmingham, Oakland County

This project included cleaning and televising of approximately 94,000 linear feet of 8" to 72" diameter combined and sanitary sewers and sewer laterals in the City of Birmingham. Using the data collected, the Contractor was then approved to perform localized rehabilitation of the sewers including root removal, grinding mineral deposits and protruding taps, spot repairs with epoxy liner or stainless-steel internal sleeve, and grouting of joints. Many of the sewers were located in the pavement section of Old Woodward Avenue, which required strict traffic control requirements and coordination with local residents and businesses. The scope of work also includes prioritizing additional sewers for future and rehabilitation.

CWSRF Sanitary Sewer Improvements

City of Marysville, St. Clair County

HRC provided project planning to secure funding through the Clean Water State Revolving Fund (CWSRF) program for improvements to the City's sanitary collection system and wastewater treatment plant. The goal of the sanitary sewer rehabilitation project was to address areas of high inflow and infiltration (I/I) and address structural sewer and manhole defects. It included approximately 14,500 lineal feet of CIPP lining, grouting of 420 pipe segments, 10 segments of open-cut replacement, and 120 spot liners for sanitary sewers ranging from 8" to 24" diameter. The project also included lining and rehabilitation of sanitary manholes.

South Evergreen Interceptor Rehabilitation

Village of Beverly Hills, Bloomfield Township and City of Birmingham, Michigan

HRC assisted the office of the Oakland County Water Resources Commissioner with assessment and design and construction administration of rehabilitation of a portion of the Evergreen-Farmington Sanitary Drain (EFSD) sanitary interceptor located along the Evergreen Arm near 14 Mile Road. Rehabilitation work on the 54" diameter sanitary sewer included: fracture repairs, reinforcement repairs, chemical grouting, and spin-cast geopolymer lining. As part of the project, the design and construction included bypass pumping, a diversion of the Birmingham Tunnel Sewer, internal sewer inspection before and after rehabilitation, manhole lining, odor control, surface restoration, traffic control and securing all permits and coordination with other utilities and local agencies. The construction contract amount was approximately \$1.86M.

Multi-Year Sanitary Sewer Rehabilitation

Bloomfield Township, Oakland County

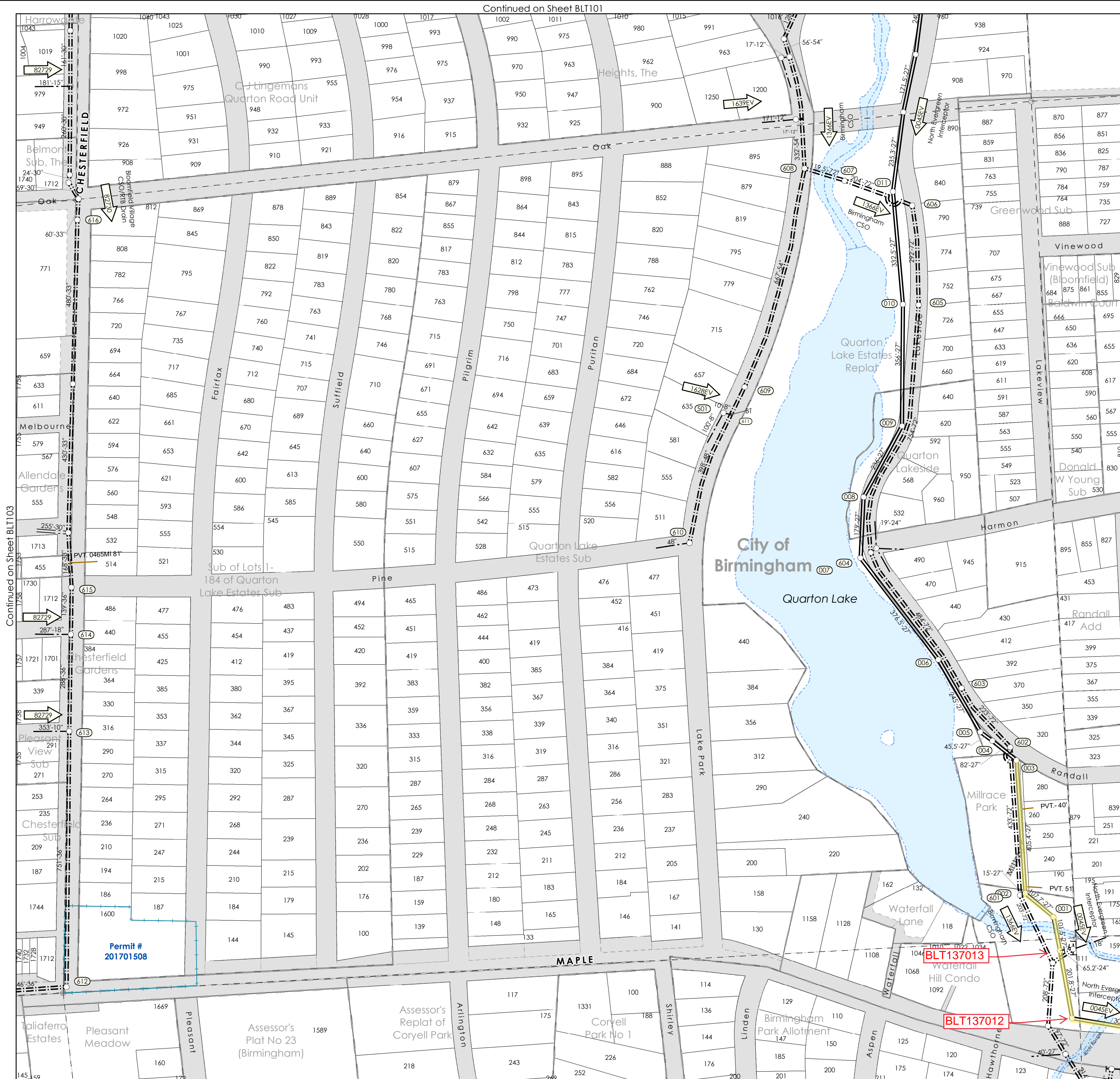
HRC provided engineering assistance related to the development and implementation of a multi-year sanitary sewer rehabilitation program for Bloomfield Township. The work included review of the system to prioritize areas of highest risk, developing project documents for bidding, and construction administration. The 2019 project included approximately 21,000 lineal feet of CCTV assessment, 6,500 lineal feet of CIPP lining, and several spot liners for 8" to 12" diameter sanitary sewers. The 2021 project included 6,500 lineal feet of CCTV assessment, 13,000 lineal feet of CIPP lining, two dig-up repairs, and several spot liners for 8" to 12" diameter sanitary sewers.

Multi-Year Sanitary Sewer Rehabilitation

Royal Oak Township, Oakland County

HRC provided project planning to secure funding through the Clean Water State Revolving Fund (CWSRF) program for development and implementation of a rehabilitation program for the Royal Oak Township sanitary sewer system, which is operated and maintained by the office of the Oakland County Water Resources Commissioner. The work included review of the system to prioritize areas of highest risk, developing project documents for bidding, construction administration, and managing the CWSRF funding. The FY2022 project included approximately 3,175 lineal feet of CIPP lining, and several spot liners and point repairs for 8" to 30" diameter sanitary sewers. HRC is currently assisting with the development of a project plan amendment to secure additional funding for FY2024.

Continued on Sheet BLT101



Continued on Sheet BLT137

DISCLAIMER:
The information displayed in this map is compiled from recorded deeds, plats, tax maps, surveys and other public records. Although this information is intended to accurately reflect public information, it is not a legally recorded map or survey and is not intended to be used as one. Users should consult primary/original information sources where appropriate.

One Public Works Drive
Building 95 West
Waterford, Michigan
48328-1907



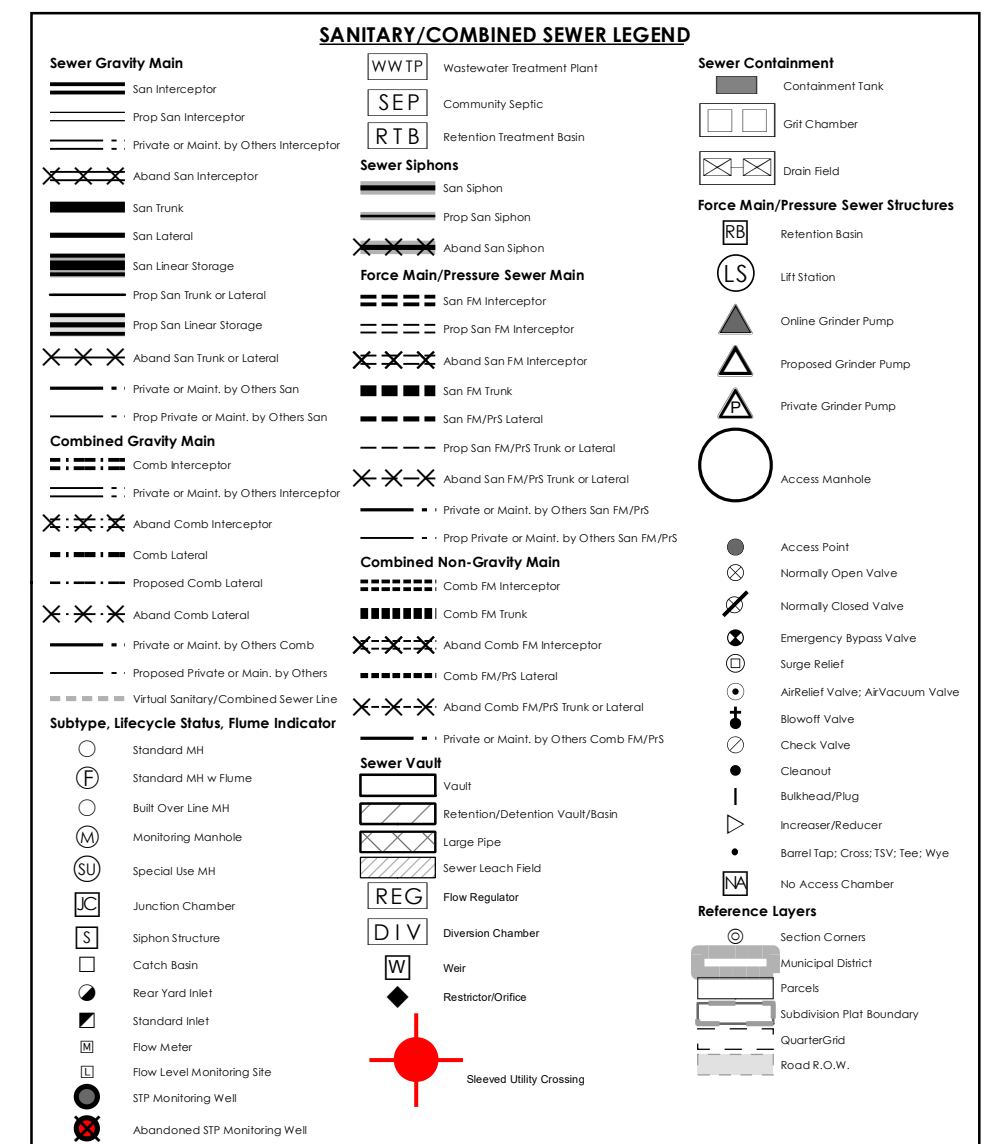
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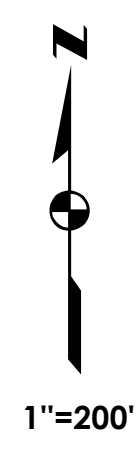
BLOOMFIELD
SANITARY / COMBINED SEWER SYSTEM
Township of Bloomfield

SHEET
104

Map Printed Feb 09, 2022

1"=200'





**SHEET
142**

Map Printed Feb 05, 2020

**Jim Nash, Oakland County Water Resources Commissioner
Evergreen Farmington Sanitary Drain Drainage District
For Construction of the Walnut No. 3 Pump Station Rehabilitation
Bloomfield Township
Oakland County, Michigan**

Construction Estimate No. 2

October 26, 2022 to January 6, 2023

Department No.: 6010101

Fund No.: 58410

Project No.: 1-3006

Contractor: Lawrence M. Clarke Inc.
50850 Bemis Rd
Belleville, MI 48111

Account No.: 730352

Program No.: 149667

Activity: FAC

Vendor No.: 16424

Contract No.: 9895

Date of Contract: 4/29/2022

Completion Date: 3/25/2023

Original Contract Amount:		\$1,209,000.00
Previous Change Order Numbers (none):		\$0.00
Change Orders This Estimate Numbers (none):		\$0.00
Total Net Change Orders:		\$0.00
Adjusted Contract Amount:		\$1,209,000.00
Subtotal To Date: (Sheet 2 of 2 Column 7)		\$822,800.00
Less Deductions to Date: (Sheet 2 of 2 Column 7)		\$0.00
Gross Estimate: (Work in Place)	68.06%	\$822,800.00
Less Amount Reserved: (5% of Adjusted Contract Amount)		\$60,450.00
Total Amount Allowed To Date:		\$762,350.00
Less Previous Estimates:		\$579,100.00
Net Payment Request To Be Paid To Contractor:		\$183,250.00
Reserve Payment to Contractor		\$0.00
Balance of Contract To Date	✓	\$386,200.00
Accounting Auditor:	BCR	1/13/2023
Less Previous Transfers To Reserve:		\$60,450.00
Amount of Current Transfer:		\$0.00

Prepared by:

Evangelos Bantios

Evangelos Bantios, P.E. - Project Engineer

Date: 1/13/2023

Recommended by:

Mark Mattson, P.E. - Consulting Engineer

Date: 1/13/2023

Approved by:

Joel Brown, P.E. - Chief Engineer

Date:

Approved by:

Sid Lockhart, P.E. - Special Project Manager

Date:

Approved by Board on:

**JIM NASH
OAKLAND COUNTY WATER RESOURCES COMMISSIONER**

Jim Nash, Oakland County Water Resources Commissioner
Evergreen Farmington Sanitary Drain Drainage District
For Construction of the Walnut No. 3 Pump Station Rehabilitation
Bloomfield Township
Oakland County, Michigan

Construction Estimate No. 2		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Contract Item	Bid Quantity	Unit	Unit Price	Quantity This Payment	Total Quantity Previous Estimate	Total Quantity to Date	Total Amount to Date	Total Amount This Payment
1	Mobilization, 5% max	1	LS	\$55,000.00	0.00	1.00	1.00	\$55,000.00	\$0.00
2	Soil Erosion and Sedimentation Control	1	LS	\$25,000.00	0.00	1.00	1.00	\$25,000.00	\$0.00
3	Clearing and Grubbing	1	LS	\$20,000.00	0.00	1.00	1.00	\$20,000.00	\$0.00
4	Site Excavation and Piping	1	LS	\$120,000.00	0.00	0.50	0.50	\$60,000.00	\$0.00
5	Bypass Pumping	1	LS	\$51,000.00	0.00	0.00	0.00	\$0.00	\$0.00
6	Dewatering	1	LS	\$35,000.00	0.00	0.75	0.75	\$26,250.00	\$0.00
7	Wet Well Modifications	1	LS	\$65,000.00	0.00	0.75	0.75	\$48,750.00	\$0.00
8	Submersible Non-Clog Pumps	1	LS	\$121,300.00	0.00	0.00	0.00	\$0.00	\$0.00
9	Building	1	LS	\$235,000.00	0.60	0.25	0.85	\$199,750.00	\$141,000.00
10	Piping, Valves, and Fittings	1	LS	\$124,000.00	0.00	0.75	0.75	\$93,000.00	\$0.00
11	Water Service	1	LS	\$28,000.00	0.00	0.75	0.75	\$21,000.00	\$0.00
12	Electrical Equipment	1	LS	\$81,000.00	0.00	0.75	0.75	\$60,750.00	\$0.00
13	Electrical Service Relocation	1	LS	\$18,500.00	0.00	0.00	0.00	\$0.00	\$0.00
14	Controls and SCADA	1	LS	\$40,000.00	0.90	0.00	0.90	\$36,000.00	\$36,000.00
15	Panel and Programming Allowance	1	LS	\$88,700.00	0.00	0.77	0.77	\$68,000.00	\$0.00
16	Demolition	1	LS	\$31,000.00	0.00	0.00	0.00	\$0.00	\$0.00
17	Final Connection Piping	1	LS	\$30,000.00	0.00	0.00	0.00	\$0.00	\$0.00
18	Site Restoration Work	1	LS	\$25,000.00	0.25	0.25	0.50	\$12,500.00	\$6,250.00
19	DTE Allowance	1	LS	\$5,000.00	0.00	0.00	0.00	\$0.00	\$0.00
20	Tree Trimming	1	LS	\$10,500.00	0.00	1.00	1.00	\$10,500.00	\$0.00
21						0.0	0.00	\$0.00	\$0.00
22						0.0	0.00	\$0.00	\$0.00
23						0.0	0.00	\$0.00	\$0.00
24						0.0	0.00	\$0.00	\$0.00
25						0.0	0.00	\$0.00	\$0.00
26						0.0	0.00	\$0.00	\$0.00
27						0.0	0.00	\$0.00	\$0.00
28						0.0	0.00	\$0.00	\$0.00
29						0.0	0.00	\$0.00	\$0.00
30						0.0	0.00	\$0.00	\$0.00
31						0.0	0.00	\$0.00	\$0.00
32						0.0	0.00	\$0.00	\$0.00
33						0.0	0.00	\$0.00	\$0.00
34						0.0	0.00	\$0.00	\$0.00
35						0.0	0.00	\$0.00	\$0.00
36						0.0	0.00	\$0.00	\$0.00
37						0.0	0.00	\$0.00	\$0.00
38						0.0	0.00	\$0.00	\$0.00
39						0.0	0.00	\$0.00	\$0.00
40						0.0	0.00	\$0.00	\$0.00
41						0.0	0.00	\$0.00	\$0.00
42						0.0	0.00	\$0.00	\$0.00
43						0.0	0.00	\$0.00	\$0.00
44						0.0	0.00	\$0.00	\$0.00
45						0.0	0.00	\$0.00	\$0.00
46						0.0	0.00	\$0.00	\$0.00
47						0.0	0.00	\$0.00	\$0.00
48						0.0	0.00	\$0.00	\$0.00
49						0.0	0.00	\$0.00	\$0.00
50						0.0	0.00	\$0.00	\$0.00
51						0.0	0.00	\$0.00	\$0.00
52						0.0	0.00	\$0.00	\$0.00
53						0.0	0.00	\$0.00	\$0.00
54						0.0	0.00	\$0.00	\$0.00
55						0.0	0.00	\$0.00	\$0.00
56						0.0	0.00	\$0.00	\$0.00
57						0.0	0.00	\$0.00	\$0.00
58						0.0	0.00	\$0.00	\$0.00
59						0.0	0.00	\$0.00	\$0.00
60						0.0	0.00	\$0.00	\$0.00
61						0.0	0.00	\$0.00	\$0.00
62						0.0	0.00	\$0.00	\$0.00
63						0.0	0.00	\$0.00	\$0.00
64						0.0	0.00	\$0.00	\$0.00
65						0.0	0.00	\$0.00	\$0.00
66						0.0	0.00	\$0.00	\$0.00
67						0.0	0.00	\$0.00	\$0.00

Change Orders:

						0.0	0.00	\$0.00	\$0.00

Stored Material:

8	Submersible Non-Clog Pumps	1	LS	\$121,300.00	0.00	0.71	0.71	\$86,300.00	\$0.00

Deductions:

						0.0	0.00	\$0.00	\$0.00

Total Amount to Date	\$736,500.00
Total Amount This Estimate	\$183,250.00
Change Orders to Date	\$0.00
Change Orders This Estimate	\$0.00
Stored Materials to Date	\$86,300.00
Stored Materials This Estimate	\$0.00
Subtotal to Date	\$822,800.00
Subtotal This Estimate	\$183,250.00
Deductions to Date	\$0.00
Deductions This Estimate	\$0.00
Payment This Estimate	\$183,250.00
Less Transfer to Reserve	\$0.00
Net Payment	\$183,250.00

Instructions:
Once this worksheet is filled in for Estimate No. 1, it should be copied and renamed to create Estimate No. 2. This procedure should be repeated for each subsequent estimate and the final payment.
Starting with Estimate No. 2, formulae should be entered in Column 5 to reference Column 6 of the previous estimate, the formula in cell B8 should be modified, and the quantities in Column 4 should be updated to reflect the current period.
Add line to show new substantial and final contract times on Approved Est sheet as needed.
Delete instructions before final submittal for accounting review.

CONTRACTOR'S DECLARATION

The undersigned, on behalf of Lawrence M. Clarke, Inc ("Contractor"), hereby declares that the Contractor has not, during the period commencing with the start of the Work which is the subject of the Contract defined below to following date: 01/06, 2023, performed any Work, furnished any material, sustained any loss, damage or delay for any reason, including soil conditions encountered or created, or otherwise done anything for which Contractor shall ask, demand, sue for, or claim compensation from the Evergreen Farmington Sanitary Drain Drainage District ("Owner"), or its agents, in addition to the original scope of Work specified in Oakland County Purchasing Contract Number 9895 and , on this 29th day of April, 2022 between Contractor and Owner, and in the Change Orders for additional or extra Work issued by the Owner, in writing, as provided thereunder and/or extension of time, except as set forth on the itemized statement attached hereto.

There ☒ is ☐ is not an itemized statement attached.

Date: 11/12/23

Contractor: Lawrence M. Clarke, Inc.
Signature: [Signature]
Name: Lynn L. Harmala
Title: President

**Jim Nash, Oakland County Water Resources Commissioner
Evergreen Farmington Sanitary Drain Drainage District
8 Mile Road CAP 8 Mile Road Pump Station & SSO Chamber Improvements - Phase 1
Southfield
Oakland County, Michigan**

Construction Estimate No. 10

December 3, 2022 to December 31, 2022

Department No. : 6010101

Fund No. : 58410

Project No. : 1-3181

Account No. : 730352

Program No. : 149667

Activity : FAC

Vendor No. : 23191

Contract No. : 6628

Date of Contract : 2/2/2022

Completion Date : 8/13/2027

Contractor :

Walsh Construction Company II, LLC

3031 W Grand Blvd, Suite 640

Detroit, MI 48202

Original Contract Amount:

\$0.00

Previous Change Order Numbers: CO#1, CO#2, CO#3, CO#4, CO#5, CO#6

\$9,766,079.25

Change Orders This Estimate Number: CO # 7

\$40,410,921.00

Total Net Change Orders:

\$50,177,000.25

Adjusted Contract Amount:

\$50,177,000.25

Subtotal To Date: (Sheet 2 of 2 Column 7)

\$792,941.89

Less Deductions to Date: (Sheet 2 of 2 Column 7)

\$0.00

Gross Estimate: (Work in Place)

1.58%

\$792,941.89

Less Amount Reserved: (10% of Gross Estimate)

\$79,294.19

Total Amount Allowed To Date:

\$713,647.70

Less Previous Estimates:

\$64,230.66

Net Payment Request To Be Paid To Contractor:

\$649,417.04

Reserve Payment to Contractor

\$0.00

Balance of Contract To Date



\$49,384,058.36

Accounting Auditor: *BER* 1/17/2023

Less Previous Transfers To Reserve:

\$7,136.74

Amount of Current Transfer:

\$72,157.45

Prepared by:

Evangelos Bantios

Evangelos Bantios, P.E. - Project Engineer

Date:

1/17/2023

Recommended by:

Joe Siwek, P.E. - Consulting Engineer

Date:

Approved by:

Joel Brown, P.E. - Chief Engineer

Date:

Approved by:

Sid Lockhart, P.E. - Special Project Manager

Date:

Approved by Board on:

JIM NASH

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

CONSTRUCTION ESTIMATE

Jim Nash, Oakland County Water Resources Commissioner
Evergreen Farmington Sanitary Drain Drainage District
8 Mile Road CAP 8 Mile Road Pump Station & SSO Chamber Improvements - Phase 1
Southfield
Oakland County, Michigan

Construction Estimate No. 10		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Contract Item	Bid Quantity	Unit	Unit Price	Quantity This Payment	Total Quantity Previous Estimate	Total Quantity to Date	Total Amount to Date	Total Amount This Payment
1	OCO #1 Elevator (Includes Insurance & OH&P)	1	LS	\$285,469.59	0.00	0.25	0.25	\$71,367.40	\$0.00
2	OCO#2 Generator (Includes Insurance & OH&P)	1	LS	\$1,295,213.13	0.15		0.15	\$194,282.00	\$194,282.00
3	OCO#3 Electrical Equipment (Includes Insurance & OH&P)	1	LS	\$1,823,797.41			0.00	\$0.00	\$0.00
4	OCO#4 Pumps (Includes Insurance & OH&P)	1	LS	\$2,311,820.95			0.00	\$0.00	\$0.00
5	OCO#5 Valves & Actuators (Includes Insurance & OH&P)	1	LS	\$1,044,145.02			0.00	\$0.00	\$0.00
6	OCO#6 Electrical & Remaining Equipment (Includes Insurance & OH&P)	1	LS	\$3,005,633.15			0.00	\$0.00	\$0.00
7	Cash Allowance - DTE Electrical & Lighting Protection Required by DTE at	1	LS	\$60,000.00			0.00	\$0.00	\$0.00
8	Cash Allowance - Consumers Energy Gas	1	LS	\$15,000.00			0.00	\$0.00	\$0.00
9	Cash Allowance - Comcast Internet	1	LS	\$5,000.00			0.00	\$0.00	\$0.00
10	Cash Allowance - Purchase & Install Internet Booster	1	LS	\$15,000.00			0.00	\$0.00	\$0.00
11	Cash Allowance - AT&T Phone System Relocate	1	LS	\$15,000.00			0.00	\$0.00	\$0.00
12	Cash Allowance - Security Camera Relocate	1	LS	\$15,000.00			0.00	\$0.00	\$0.00
13	Cash Allowance - Unforeseen Utility Relocation	1	LS	\$100,000.00			0.00	\$0.00	\$0.00
14	Cash Allowance per DWGs - Consumers Energy 6" Gas Relocation	1	LS	\$100,000.00			0.00	\$0.00	\$0.00
15	Cash Allowance per DWGs - Phone System Install	1	LS	\$25,000.00			0.00	\$0.00	\$0.00
16	Cash Allowance per DWGs - Internet System Install	1	LS	\$25,000.00			0.00	\$0.00	\$0.00
17	Cash Allowance per DWGs - Boot on Power Lines & Raising AT&T Lines	1	LS	\$40,000.00			0.00	\$0.00	\$0.00
18	Cash Allowance per DWGs - Concrete & Asphalt Paving Work	1	LS	\$1,600,000.00			0.00	\$0.00	\$0.00
19	Cash Allowance per DWGs - Install of Antennas & Wiring at Pump Station & SSO	1	LS	\$50,000.00			0.00	\$0.00	\$0.00
20	Cash Allowance per DWGs - Bridge Crane Work (7.5 Tons)	1	LS	\$625,000.00			0.00	\$0.00	\$0.00
21	Cash Allowance per DWGs - Switchgear Design Changes	1	LS	\$50,000.00			0.00	\$0.00	\$0.00
22	Cash Allowance per DWGs - Landscape Allowance - 2026/2027 - Bid	1	LS	\$480,000.00			0.00	\$0.00	\$0.00
23	Cash Allowance per Meeting - Dewatering	1	LS	\$180,000.00			0.00	\$0.00	\$0.00
24	Cash Allowance per Meeting - Permits	1	LS	\$560,000.00			0.00	\$0.00	\$0.00
25	Cash Allowance per Meeting - Summer & Winter Conditions	1	LS	\$130,000.00			0.00	\$0.00	\$0.00
26	Cash Allowance per Meeting - Traffic Control	1	LS	\$479,800.00			0.00	\$0.00	\$0.00
27	Cash Allowance per Meeting - Vac Truck Services & TV Inspections	1	LS	\$480,000.00			0.00	\$0.00	\$0.00
28	Construction Staking	1	LS	\$94,600.00			0.00	\$0.00	\$0.00
29	Security	1	LS	\$570,300.00			0.00	\$0.00	\$0.00
30	Temporary Generators & Fuel	1	LS	\$155,000.00			0.00	\$0.00	\$0.00
31	Equipment Storage Off Site & Shipping	1	LS	\$40,000.00			0.00	\$0.00	\$0.00
32	Hydraulic Pump at Wet Well for Concrete Work	1	LS	\$85,000.00			0.00	\$0.00	\$0.00
33	Ventilation at Overflow Chamber	1	LS	\$40,000.00			0.00	\$0.00	\$0.00
34	Preconstruction & Final Photos	1	LS	\$10,000.00			0.00	\$0.00	\$0.00
35	Selective Demolition - Blue Star	1	LS	\$1,714,470.00			0.00	\$0.00	\$0.00
36	Cast In Place Concrete - Mobilization	1	LS	\$50,000.00			0.00	\$0.00	\$0.00
37	Cast In Place Concrete- Wet Well Shoring, FRP Lower Floor	1	LS	\$955,000.00			0.00	\$0.00	\$0.00
38	Cast In Place Concrete - Wet Well FRP Upper Floor	1	LS	\$409,000.00			0.00	\$0.00	\$0.00
39	Cast In Place Concrete - Yard Pipe Mud Mat & Electrical Ductbanks	1	LS	\$210,000.00			0.00	\$0.00	\$0.00
40	Cast In Place Concrete - Exterior Pads, Bollards, Temp Bulkhead, Building	1	LS	\$163,600.00			0.00	\$0.00	\$0.00
41	Cast In Place Concrete - Interior Pads, Wall Patching, Floor Infills, Pump & Misc.	1	LS	\$220,000.00			0.00	\$0.00	\$0.00
42	Cast In Place Concrete - Valve Vault	1	LS	\$400,000.00			0.00	\$0.00	\$0.00
43	Cast In Place Concrete - Overflow Chamber Gate Structure	1	LS	\$400,000.00			0.00	\$0.00	\$0.00
44	Cast In Place Concrete - Overflow Chamber Modify Existing Overflow Structure	1	LS	\$950,000.00			0.00	\$0.00	\$0.00
45	Cast In Place Concrete - Demobilization	1	LS	\$25,000.00			0.00	\$0.00	\$0.00
46	Hollow Core Planks Fabcon Precast	1	LS	\$28,000.00			0.00	\$0.00	\$0.00
47	Masonry Work - BNE	1	LS	\$133,168.00			0.00	\$0.00	\$0.00
48	Metals - Ross Steel	1	LS	\$1,036,000.00			0.00	\$0.00	\$0.00
49	Rough Carpentry - Temp & Final Doors	1	LS	\$55,000.00			0.00	\$0.00	\$0.00
50	Rough Carpentry - Temp Wall for Roof Removal	1	LS	\$57,000.00			0.00	\$0.00	\$0.00
51	Rough Carpentry - Scaffold Plank at Floor Openings	1	LS	\$21,000.00			0.00	\$0.00	\$0.00
52	Rough Carpentry - Floor Protection	1	LS	\$38,700.00			0.00	\$0.00	\$0.00
53	Waterproofing/Joint Sealant - BNE	1	LS	\$49,329.00			0.00	\$0.00	\$0.00
54	EPDM Roofing - Royal Roofing	1	LS	\$396,900.00			0.00	\$0.00	\$0.00
55	Access Doors and Frames	1	LS	\$31,392.00			0.00	\$0.00	\$0.00
56	Overhead Doors - GLDD	1	LS	\$21,275.00			0.00	\$0.00	\$0.00
57	Painting - Signature	1	LS	\$427,000.00			0.00	\$0.00	\$0.00
58	Process Equipment Identifications	1	LS	\$5,000.00			0.00	\$0.00	\$0.00
59	Metal Canopies & Bike Racks	1	LS	\$25,700.00			0.00	\$0.00	\$0.00
60	Passenger Elevator	1	LS	\$40,000.00			0.00	\$0.00	\$0.00
61	Heating, Ventilating and Air Conditioning - DeCal	1	LS	\$751,690.00			0.00	\$0.00	\$0.00
62	Engine Generators & Startup Fuel	1	LS	\$25,000.00			0.00	\$0.00	\$0.00
63	Site Work - Mobilization	1	LS	\$100,000.00			0.00	\$0.00	\$0.00
64	Site Work - Install Laydown & Excavate & Backfill Temporary Utilities	1	LS	\$690,000.00			0.00	\$0.00	\$0.00
65	Site Work - Dig, Install, Backfill Storm, Water Mains, Fire Hydrant	1	LS	\$675,000.00			0.00	\$0.00	\$0.00
66	Site Work - Dig, Backfill Electrical Ductbanks	1	LS	\$36,000.00			0.00	\$0.00	\$0.00
67	Site Work - Site Demo Pump Station	1	LS	\$125,000.00			0.00	\$0.00	\$0.00
68	Site Work Dig & Backfill Yard Pipe & Precast Manholes & Site CIP Concrete	1	LS	\$877,000.00			0.00	\$0.00	\$0.00
69	Site Work Dig & Backfill Valve Vault	1	LS	\$280,000.00			0.00	\$0.00	\$0.00
70	Site Work Demo Overflow Chamber From Grade to -15'	1	LS	\$554,200.00			0.00	\$0.00	\$0.00
71	Site Work Demo Overflow Chamber From -15' to BOE	1	LS	\$370,000.00			0.00	\$0.00	\$0.00
72	Site Work Backfill & Road Prep Overflow Chamber	1	LS	\$380,000.00			0.00	\$0.00	\$0.00
73	Site Work Demo Laydown, Temp Utilities, Restore Pump Station & Laydown	1	LS	\$200,000.00			0.00	\$0.00	\$0.00
74	Site Work Demobilize	1	LS	\$45,000.00			0.00	\$0.00	\$0.00
75	Temporary Earth Retention System (Chamber) - EC Korneffel	1	LS	\$944,678.00			0.00	\$0.00	\$0.00
76	Temporary Paving Work - Sidewalks at Trailers	1	LS	\$20,000.00			0.00	\$0.00	\$0.00
77	Temporary Paving Work - Parking Lot Patches	1	LS	\$41,000.00			0.00	\$0.00	\$0.00
78	Temporary Paving Work - Minnor 8 Mile Road Patch	1	LS	\$20,000.00			0.00	\$0.00	\$0.00
79	Temporary Paving Work - Approaches, Temp Roads & Crane Pad	1	LS	\$50,000.00			0.00	\$0.00	\$0.00
80	Chain Link Fences and Gates - Future Fence	1	LS	\$161,686.00			0.00	\$0.00	\$0.00
81	Process & Plumbing Systems - DeCal	1	LS	\$6,526,000.00			0.00	\$0.00	\$0.00
82	Instrumentation and Control for Process Systems - ICS	1	LS	\$998,000.00			0.00	\$0.00	\$0.00
83	General Conditions Staffing	1	LS	\$6,550,618.00	0.02		0.02	\$116,975.32	\$116,975.32
84	General Requirements- Trailer City Mobilize & Trailer Setup	1	LS	\$100,000.00			0.00	\$0.00	\$0.00
85	General Requirements- Trailer City Trailer Rental & Monthly Expenses	1	LS	\$224,310.00			0.00	\$0.00	\$0.00
86	General Requirements- Trailer City Trailer Technology Equipment	1	LS	\$35,000.00			0.00	\$0.00	\$0.00
87	General Requirements- Trailer City Demobilization	1	LS	\$25,000.00			0.00	\$0.00	\$0.00
88	General Requirements- Temp. Const. Signs, Conc. Brriers, Tool Storage, Storage	1	LS	\$99,592.00			0.00	\$0.00	\$0.00
89	General Requirements- Temp. Const. FE, Fence Maintenance, Snow Fence, Ladders,	1	LS	\$73,366.00			0.00	\$0.00	\$0.00
90	General Requirements- Temp. Const. Printing	1	LS	\$15,000.00			0.00	\$0.00	\$0.00
91	General Requirements- Temp. Const. Skid Steer Rental	1	LS	\$10,000.00			0.00	\$0.00	\$0.00
92	General Requirements- Temp. Const. Remove Storage Compound & Punch List	1	LS	\$30,000.00			0.00	\$0.00	\$0.00
93	General Requirements- Temp. Utilities & Equipment Hand Washing Station	1	LS	\$5,000.00			0.00	\$0.00	\$0.00
94	General Requirements- Temp. Utilities & Equipment Temp Toilets, Drinking Water,	1	LS	\$98,750.00			0.00	\$0.00	\$0.00
95	General Requirements- Temp. Utilities & Equipment-Hydrant Water & Dust Control	1	LS	15,500.00			0.00	\$0.00	\$0.00
96	General Requirements- Temp. Utilities & Equipment - Telehandler/Equipment with	1	LS	88,346.00			0.00	\$0.00	\$0.00
97	General Requirements- Temp. Utilities & Equipment - Street Sweeping	1	LS	62,500.00			0.00	\$0.00	\$0.00
98	General Requirements- Temp. Utilities & Equipment - Scaffolding for Stair Towers	1	LS	50,000.00			0.00	\$0.00	\$0.00
99	General Requirements- Safety Handrails at Floor & Roof Openings	1	LS	27,000.00			0.00	\$0.00	\$0.00
100	General Requirements- Safety Supplies, Periodic Cleanup, Maintenance	1	LS	73,000.00			0.00	\$0.00	\$0.00
101	General Requirements- Safety Snow Removal & Drug Tests	1	LS	26,000.00			0.00	\$0.00	\$0.00
102	General Requirements- Safety Final Cleanup	1	LS	40,000.00			0.00	\$0.00	\$0.00
103	General Requirements- Labor, Carpenter & Truck	1	LS	643,069.00			0.00	\$0.00	\$0.00
104	Performance and Payment Bonds	1	LS	378,135.00	1.00		1.00	\$378,135.00	\$378,135.00
105	General Liability Insurance - Supplementary to OCIP	1	LS	202,100.00			0.00	\$0.00	\$0.00
106	Contingency	1	LS	1,294,753.00			0.00	\$0.00	\$0.00
107	FEE 6.5%	1	LS	2,466,394.00	0.01		0.01	\$32,182.17	\$32,182.17
108									
109									

Change Orders:

						0.00	0.00	\$0.00	\$0.00

Stored Material:

						0.00	0.00	\$0.00	\$0.00

Deductions:

						0.00	0.00	\$0.00	\$0.00

Total Amount to Date	\$792,941.89
Total Amount This Estimate	\$721,574.49
Change Orders to Date	\$0.00
Change Orders This Estimate	\$0.00
Stored Materials to Date	\$0.00
Stored Materials This Estimate	\$0.00
Subtotal to Date	\$792,941.89
Subtotal This Estimate	\$721,574.49
Deductions to Date	\$0.00
Deductions This Estimate	\$0.00
Payment This Estimate	\$721,574.49
Less Transfer to Reserve	\$72,157.45
Net Payment	\$649,417.04

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the EVERGREEN - FARMINGTON SANITARY DRAIN SYSTEM

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *for Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

Date	Ref No.	Paid To	For	Amount
	V # SINV00155188	Orchard Hiltz & McCliment Inc	Invoice # 57757 - Contracted Services - 11/19/22	\$ 2,329.18
			Total	\$ 2,329.18
	TBP	Clark Hill LLC	Invoice #1275333 - Legal Services - 12/31/22	2,116.50
			Subtotal Project # 1-3181	2,116.50
	V # SINV00154047	Fishbeck	Invoice #418643 - Contracted Services - 12/23/22	\$ 14,331.85
			Subtotal Project # 1-3530	14,331.85
			Grand Total	\$ 18,777.53

3. Acacia Park CSO

AGENDA

DRAINAGE BOARD FOR THE ACACIA PARK CSO DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present request for reimbursement of the Evergreen Farmington Fund in the amount of \$307,736.22
5. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$18,531.05
6. Other business
7. Approve pro rata payment to Drainage Board members
8. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE ACACIA PARK CSO DRAIN**

December 13, 2022

A meeting of the Drainage Board for the Acacia Park CSO Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

ABSENT: David Woodward, Chairperson of the Oakland County Board of Commissioners

Minutes of the meeting held October 25, 2022, were presented for consideration. It was moved by Markham, supported by Nash, that the minutes be approved.

ADOPTED: Yeas - 2
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$1,006.50 (as attached) was presented. It was moved by Markham, supported by Nash, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$1,006.50.

ADOPTED: Yeas - 2
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham.

ADOPTED: Yeas - 2
Nays - 0

There being no further business, the meeting was adjourned.

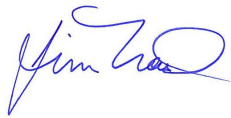


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Acacia Park CSO Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Acacia Park CSO Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the ACACIA PARK CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *For Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Reimbursement of Evergreen Farmington Fund

The following is a detail of charges paid from the Evergreen Farmington Fund
for the period ending January 15, 2023.

Date	Ref No.	For	Amount
04/30/22	JE# 382567	April 2022 Storm Water Flow Charges	\$33,269.58
05/31/22	JE# 002050	May 2022 Storm Water Flow Charges	33,269.58
06/30/22	JE# 002591	Jun 2022 Storm Water Flow Charges	33,269.58
07/31/22	JE# 003556	July 2022 Storm Water Flow Charges	34,654.58
08/31/22	JE# 004594	Aug 2022 Storm Water Flow Charges	34,654.58
09/30/22	JE# 005474	Sept 2022 Storm Water Flow Charges	34,654.58
10/31/22	JE# 007609	Oct 2022 Storm Water Flow Charges	34,654.58
11/30/22	JE# 008584	Nov 2022 Storm Water Flow Charges	34,654.58
12/31/22	JE# 009432	Dec 2022 Storm Water Flow Charges	34,654.58
Total			<u>\$307,736.22</u>

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the ACACIA PARK CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

Shawn Phelps

DATE: January 24, 2023

SUBJECT: Request for Approval of Invoices

The following is a detail of Maintenance charges paid from the Drain Revolving Fund and Invoices
for the period ending January 15, 2023

G/L Date	Ref No.	Paid To	For	Amount
12/9/2022	V # SIN00148298	EGLE State of Michigan	Invoice # 11051858 - SOM Fees - NPDES Annual Permit Fee 2023	\$ 6,000.00
			Total	\$ 6,000.00
	TBP	Rotor Electric Company of Michigan	Invoice # 12560 - Contracted Services -12/8/22	\$ 12,531.05
			Project # 1-7157 Total	\$ 12,531.05
			Grand Total	\$ 18,531.05

4. Birmingham CSO

AGENDA

DRAINAGE BOARD FOR THE BIRMINGHAM CSO DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of October 25, 2022
3. Public Comments
4. Present request for reimbursement of the Evergreen Farmington Fund in the amount of \$317,813.25
5. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$112,841.95
6. Other business
7. Approve pro rata payment to Drainage Board members
8. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE BIRMINGHAM CSO DRAIN**

October 25, 2022

A meeting of the Drainage Board for the Birmingham CSO Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 25th day of October 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held September 27, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$33,482.87 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$33,482.87.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.



Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Birmingham CSO Drain, Oakland County, Michigan, held on the 25th day of October 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Birmingham CSO Drain Drainage District.



Jim Nash, Chairperson

Dated: October 25, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the BIRMINGHAM CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

SV For Shawn Phelps

DATE: January 24, 2023

SUBJECT: Request for Reimbursement of Evergreen Farmington Fund

The following is a detail of charges paid from the Evergreen Farmington Fund
for the period ending January 15, 2023.

Date	Ref No.	For	Amount
04/30/22	JE# 382567	April 2022 Storm Water Flow Charges	\$34,528.75
05/31/22	JE# 002050	May 2022 Storm Water Flow Charges	34,528.75
06/30/22	JE# 002591	Jun 2022 Storm Water Flow Charges	34,528.75
07/31/22	JE# 003556	July 2022 Storm Water Flow Charges	35,704.50
08/31/22	JE# 004594	Aug 2022 Storm Water Flow Charges	35,704.50
09/30/22	JE# 005474	Sept 2022 Storm Water Flow Charges	35,704.50
10/31/22	JE# 007609	Oct 2022 Storm Water Flow Charges	35,704.50
11/30/22	JE# 008584	Nov 2022 Storm Water Flow Charges	35,704.50
12/31/22	JE# 009432	Dec 2022 Storm Water Flow Charges	35,704.50
Total			<u>\$317,813.25</u>

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the BIRMINGHAM CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

For Shawn Phelps

DATE: January 24, 2023

SUBJECT: Request for Approval of Invoices

The following is a detail of Maintenance charges paid from the Drain Revolving Fund and Invoices
for the period ending January 15, 2023

G/L Date	Ref No.	Paid To	For	Amount
1/10/2023	V # SINV00153972	Pro-Seal Service Group	Invoice # 224486 - Contracted Services	\$ 1,495.00
12/9/2022	V # SINV00148292	EGLE State of Michigan	Invoice #11051863 - SOM Fees - NPDES Annual Permit Fee 2023	\$ 6,000.00
	TBP	ICS Integration Services LLC	Invoice # 2556 - Contracted Services	476.00
			Sub Total	\$ 7,971.00
	V # SINV00152749	Rotor Electric Company of Michigan	Invoice # 12560 - Contracted Services -12/8/22	14,242.24
			Sub Total - Project # 1-6094	\$ 14,242.24
	V # SINV00153961	Great Lakes Pump & Supply Company	Invoice # 70946 - Material and Supplies	28,713.36
			Sub Total - Project # 1-6095	\$ 28,713.36
1/9/2023	V # SINV00153482	ICS Integration Services LLC	Invoice # 2555 - Contracted Services - Proj 1-3196	\$ 6,069.00
1/11/2023	V # SINV00154227	GWF USA Inc	Invoice # INV-0005 - Contracted Services - Proj 1-3196	52,044.75
			Sub Total Project # 1-3196	\$ 58,113.75
	V # SINV00150348	D'Angelo Brothers Inc	Invoice # 8601 - Contracted Services - Proj 1-3496	3,801.60
			Sub Total - Project # 1-3496	\$ 3,801.60
			Total	\$ 112,841.95

5. Bloomfield Village CSO

AGENDA

DRAINAGE BOARD FOR THE BLOOMFIELD VILLAGE CSO DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present request for reimbursement of the Evergreen Farmington Fund in the amount of \$415,132.47
5. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$212,097.21
6. Other business
7. Approve pro rata payment to Drainage Board members
8. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE BLOOMFIELD VILLAGE CSO DRAIN**

December 13, 2022

A meeting of the Drainage Board for the Bloomfield Village CSO Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 15, 2022, were presented for consideration. It was moved by Markham, supported by Nash, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

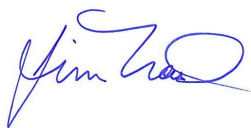
A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$3,714.27 (as attached) was presented. It was moved by Markham, supported by Nash, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$3,714.27.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

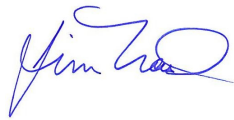


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Bloomfield Village CSO Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Bloomfield Village CSO Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the BLOOMFIELD VILLAGE CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services *Shawn Phelps*
OCWRC Accounting

DATE: January 24, 2023

SUBJECT: Request for Reimbursement of Evergreen Farmington Fund

The following is a detail of charges paid from the Evergreen Farmington Fund
for the period ending January 15, 2023.

Date	Ref No.	For	Amount
04/30/22	JE# 382567	April 2022 Storm Water Flow Charges	\$45,293.67
05/31/22	JE# 002050	May 2022 Storm Water Flow Charges	45,293.67
06/30/22	JE# 002591	Jun 2022 Storm Water Flow Charges	45,293.67
07/31/22	JE# 003556	July 2022 Storm Water Flow Charges	46,541.91
08/31/22	JE# 004594	Aug 2022 Storm Water Flow Charges	46,541.91
09/30/22	JE# 005474	Sept 2022 Storm Water Flow Charges	46,541.91
10/31/22	JE# 007609	Oct 2022 Storm Water Flow Charges	46,541.91
11/30/22	JE# 008584	Nov 2022 Storm Water Flow Charges	46,541.91
12/31/22	JE# 009432	Dec 2022 Storm Water Flow Charges	46,541.91
		Total	<u>\$415,132.47</u>

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the BLOOMFIELD VILLAGE CSO DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

for SHAWN PHELPS

DATE: January 24, 2023

SUBJECT: Request for Approval of Invoices

The following is a detail of Maintenance charges paid from the Drain Revolving Fund and Invoices
for the period ending January 15, 2023

G/L Date	Ref No.	Paid To	For	Amount
12/9/2022	V # SINV00148290	EGLE State of Michigan	Invoice #11052128 - SOM Fees - NPDES Annual Permit Fee 2023	\$ 6,000.00
12/28/2022	V # SINV00151386	JCI Jones Chemicals Inc	Invoice # 902710 - Chlorination Supplies	8,726.90
			Total	<u>\$ 14,726.90</u>
1/10/2023	V # SINV00153957	Dickinson Wright PLLC	Invoice # 1762814 - Legal Services - 11/30/22 - Proj # 1-7077	\$ 751.10
1/12/2023	V # SINV00155140	D'Angelo Brothers Inc	Invoice # 8374-WRC - Contracted Services - Proj # 1-7077	\$196,619.21
			Project # 1-7077 Subtotal	<u>\$197,370.31</u>
			Total	<u>\$212,097.21</u>

6. Clinton River Water Resource Recovery Facility

AGENDA
DRAINAGE BOARD FOR
THE CLINTON RIVER WATER RESOURCE RECOVERY FACILITY

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund from the Maintenance Fund in the amount of \$580,432.99
5. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund from the Construction Fund in the amount of \$32,380.00
6. Other business
7. Approve pro rate payment to Drainage Board members
8. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE CLINTON RIVER WATER RESOURCE RECOVERY FACILITY**

December 13, 2022

A meeting of the Drainage Board for the Clinton River Water Resource Recovery Facility was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 15, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A memorandum from John Basch, Senior Attorney, dated December 13, 2022, requesting the Board receive and file the memorandum acknowledging the satisfaction of all remaining Bedrock Express LTD., settlement terms was presented. It was moved by Markham, supported by Woodward, to receive and file the memorandum acknowledging the satisfaction of all remaining Bedrock Express LTD., settlement terms as presented.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund from the Maintenance Fund in the amount of \$167,143.83 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund from the Maintenance Fund in the amount of \$167,143.83.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund from the Construction Fund in the amount of \$32,380.00 (as attached) was


presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund from the Construction Fund in the amount of \$32,380.00.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

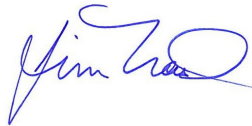


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Clinton River Water Resource Recovery Facility, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Clinton River Water Resource Recovery Facility.



Jim Nash, Chairperson

Dated: December 13, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the CLINTON RIVER WATER RESOURCE RECOVERY FACILITY DRAIN - (Maintenance)

FROM: Shawn Phelps, Chief of Fiscal Services *Shawn Phelps*
OCWRC Accounting

DATE: January 24, 2023

SUBJECT: Request for Approval of Invoices

The following is a detail of charges paid from the Drain Revolving Fund and Invoices

Payable To	Ref No.	For	Amount
Actuator Specialties	V # SINV00152733	Invoice # 4832 - Contracted Services	\$ 1,392.00
AIS Construction Equipment	TBP	Invoice # H62280 - Equipment	160,490.00
Atlas Copco Compressors LLC	V # SINV00153464	Invoice # 1122130002 - Material and Supplies	1,374.30
CleanNet of Greater Michigan, Inc	V # SINV00151356	Invoice # DET0102534 - Contracted Services - November 2022	1,601.38
D.J. Conley Associates, Inc	V # SINV00153470	Invoice # SI-48333-1 - Contracted Services	2,852.60
D.J. Conley Associates, Inc	V # SINV00153468	Invoice # SI-48380-1 - Contracted Services	1,376.60
D3W Industrials	V # SINV00152736	Invoice # 3630 - Material and Supplies	5,720.00
D3W Industrials	V # SINV00152739	Invoice # 3648 - Material and Supplies	5,720.00
D3W Industrials	TBP	Invoice # 3688 - Material and Supplies	5,720.00
Dickinson Wright PLLC	V # SINV00153949	Invoice # 1762818 - Legal Services - 11/30/22	21.71
EGLE- State Of Michigan	V # SINV00150760	Invoice # 11060111 - SOM Fees - Biosolids Land Application 2023	19,047.70
Eurofins Environment Testing America	V # SINV00153472	Invoice # 1900052013 - Laboratory Fees	1,097.50
Haviland Products Company	V # SINV00153479	Invoice # 456127 - Treatment Chemicals	4,685.00
Haviland Products Company	V # SINV00153583	Invoice # 456396 - Treatment Chemicals	2,389.10
Haviland Products Company	V # SINV00155021	Invoice # 457372 - Treatment Chemicals	10,567.00
International Controls & Equipment	TBP	Invoice # 83323-S - Contracted Services	468.00
Jones Chemicals Inc	V # SINV00151017	Invoice # 901161 - Chemical Treatment	6,405.74
Jones Chemicals Inc	V # SINV001513329	Invoice # 901506 - Chemical Treatment	3,218.72
Jones Chemicals Inc	TBP	Invoice # 902324 - Chemical Treatment	6,326.78
Jones Chemicals Inc	TBP	Invoice # 904404 - Chemical Treatment	3,157.37
Limbach Company LLC	V # SINV00152755	Invoice # 16139 - Contracted Services	5,168.29
Limbach Company LLC	TBP	Invoice # 16545 - Contracted Services	508.00
Polydyne Inc	V # SINV00153363	Invoice # 1695162 - Chemical Treatment	49,005.00
Polydyne Inc	V # SINV00153547	Invoice # 1696644 - Chemical Treatment	47,817.00
PVS Technologies Inc	TBP	Invoice # 319465 - Chemical Treatment	2,618.56
PVS Technologies Inc	TBP	Invoice # 319583 - Chemical Treatment	2,240.00
PVS Technologies Inc	V # SINV00153235	Invoice # 323120 - Chemical Treatment	4,874.24
PVS Technologies Inc	V # SINV00153573	Invoice # 324137 - Chemical Treatment	4,058.88
PVS Technologies Inc	V # SINV00153579	Invoice # 324471 - Chemical Treatment	2,597.28
PVS Technologies Inc	V # SINV00152764	Invoice # 324873 - Chemical Treatment	3,707.20
PVS Technologies Inc	V # SINV00153478	Invoice # 324995 - Chemical Treatment	2,181.76
PVS Technologies Inc	TBP	Invoice # 325307 - Chemical Treatment	3,408.16
Paragon Laboratories	V # SINV00152757	Invoice # 104420-233245 - Lab Fees	1,027.00
Paragon Laboratories	V # SINV00153473	Invoice # 104420-233450 - Lab Fees	1,191.00
Paragon Laboratories	V # SINV00152758	Invoice # 104420-233255 - Lab Fees	1,027.00
Paragon Laboratories	V # SINV00152761	Invoice # 104420-233258 - Lab Fees	1,143.00
Paragon Laboratories	V # SINV00153475	Invoice # 104420-233636 - Lab Fees	1,191.00
Paragon Laboratories	V # SINV00153477	Invoice # 104420-233638 - Lab Fees	1,191.00
Paragon Laboratories	TBP	Invoice # 104420-233694 - Lab Fees	1,242.00
Paragon Laboratories	TBP	Invoice # 104420-233701 - Lab Fees	1,242.00
Paragon Laboratories	TBP	Invoice # 104420-233703 - Lab Fees	1,242.00
Oakland Heights Development/Republic Srvc	V # SINV00155420	Invoice # 4243-000017038 - Contracted Services	1,702.50
Waste Management	V # SINV00153377	Invoice # 8648642-1714-5 - Garbage & Rubbish Disposal	4,929.03
York Repair	V # SINV00152743	Invoice # MRI-13301 - Contracted Services	5,398.00
Subtotal \$			394,341.40

Pro-Seal Service Group	V # SINV00150985	Invoice # 223882 - Material and Supplies - Proj #1-3361	\$	51,932.00
		Subtotal - Project 1-3661	\$	51,932.00
Tetra Tech Inc	V # SINV00152767	Invoice # 51997469 - Engineering Services - 11/25/22 - Proj # 1-3304	\$	510.00
		Subtotal - Project 1-1-3304	\$	510.00
NTH Consultants Ltd	V # SINV00153970	Invoice # 631722 - Engineering Services - 12/23/22 - Proj # 1-7127	\$	1,262.50
		Subtotal - Project 1-7127	\$	1,262.50
Jacobs Consultants, Inc	V # SINV00152753	Invoice # C6A19600-08 - Contracted Services - Proj # 1-7070	\$	12,276.84
Jacobs Consultants, Inc	V # SINV00155215	Invoice # C6A19600-09 - Contracted Services - Proj # 1-7070	\$	1,627.50
		Subtotal - Project 1-7070	\$	13,904.34
NTH Consultants Ltd	V # SINV00155363	Invoice # 631718 - Engineering Services - 12/23/22 - Proj # 1-7162	\$	3,448.75
		Subtotal - Project 1-7162	\$	3,448.75
NTH Consultants Ltd	V # SINV00153466	Invoice # 631721 - Engineering Services - 12/23/22 - Proj # 1-7082	\$	1,722.50
		Subtotal - Project 1-7082	\$	1,722.50
Fishbeck	V # SINV00152772	Invoice # 418707 - Engineering Services - 12/23/22 - Proj # 1-3042	\$	139.50
CSM Mechanical LLC	V # SINV00155424	Invoice # 22-435.2 - Project Construction - 12/31/22 - Proj # 1-3042	\$	108,603.00
		Subtotal - Project 1-3042	\$	108,742.50
Fishbeck	V # SINV00148353	Invoice # 418495 - Engineering Services - 11/25/22 - Proj # 1-7047	\$	4,104.00
		Subtotal - Project 1-7047	\$	4,104.00
Fishbeck	V # SINV00153952	Invoice # 418710 - Engineering Services - 12/23/22 - Proj # 1-3492	\$	465.00
		Subtotal - Project 1-3492	\$	465.00
			Total	\$ 580,432.99

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the CLINTON RIVER WATER RESOURCE RECOVERY FACILITY DRAIN - (Construction)

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

	Ref No.	For	Amount
CSM Mechanical LLC	TBP	Invoice # 22-723 - Contracted Services - Proj 1-2181	\$ 32,380.00
		Total for Project # 1-2181	<u>\$ 32,380.00</u>

7. George W. Kuhn Drain

AGENDA

DRAINAGE BOARD FOR THE GEORGE W. KUHN DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present Memorandum from Joel Kohn, Environmental Planner, dated January 24, 2023, requesting the Board approve \$50,000 for environmental staff to complete sampling work within the Drainage District throughout the 2023 sampling season
5. Present Memorandum from Stephanie Petriello, Environmental Planner, dated January 24, 2023, requesting the Board authorize the Center for Watershed Protection and the Clinton River Watershed Council to commence work outlined in their proposals dated December 20, 2022 and January 10, 2022, respectively, for a not-to-exceed amount of \$45,680 and \$30,189
6. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$194,197.78
7. Other business
8. Approve pro rata payment to Drainage Board members
9. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE GEORGE W. KUHN DRAIN**

December 13, 2022

A meeting of the Drainage Board for the George W. Kuhn Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 15, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A memorandum from Lynne Seymour, P.E., Chief Engineer, requesting the Board authorize \$350,000 for the use of developing and implementing a residential green infrastructure pilot program was presented. It was moved by Markham, supported by Woodward, to authorize \$150,000 for the planning and promotion of the program and table the implementation amount until the completion of the pilot program.

ADOPTED: Yeas - 3
Nays - 0

A memorandum from Stephanie Petriello, Environmental Planner, dated December 13, 2022, requesting the board authorize Hubbell, Roth, & Clark to commence work outlined on the November 30, 2022, proposal to develop plans and specifications for parking lot improvements for a not-to-exceed cost of \$65,000 was presented. It was moved by Markham, supported by Woodward, to authorize Hubbell, Roth, & Clark to commence work outlined on the November 30, 2022, proposal for a not-to-exceed cost of \$65,000 as presented.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$10,525.27 (as attached) was presented. It was moved by

Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$10,525.27.

ADOPTED: Yeas - 3
Nays - 0

Kelsey Cooke updated the Board on the communications between Macomb County Commissioner Candice Miller and Commissioner Nash regarding the Drainage District's effect on the Red Run Intercounty Drain. Due to the matter being in the media, a letter to the elected officials of the communities involved will be dispersed to properly convey the facts of the issue.

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

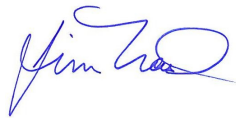


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the George W. Kuhn Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the George W. Kuhn Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER****MEMORANDUM**

TO: Jim Nash, Chairperson
George W. Kuhn Drain Drainage District

FROM: Joel Kohn, Environmental Planner

SUBJECT: Great Lakes Water Authority Investigational Grab Sampling Program

DATE: January 24, 2023

For the last year, the Great Lakes Water Authority (GLWA) has facilitated the start up of a regional investigational grab sampling program to be conducted for a minimum of 5 years. With the aide of a GLWA maintained GIS dashboard, the goal of the project is to share data regardless of jurisdiction to improve water quality in Southeast Michigan by identifying where unknown sources of sewage are impacting our waterways.

We have chosen approximately 50 sites around the GLWA operating area of Oakland County, with 10 sites in and around the George W. Kuhn Drain Drainage District.

Environmental Unit staff will be sampling for E. coli on a weekly basis throughout the spring and summer of 2023 regardless of weather conditions with a minimum of one round of Microbial Source Tracking (MST) for each site. Sampling results will be sent to GLWA to be inputted into there regional data mart which will be available to Counties and local communities throughout the region but not available for public viewing at this time. In Oakland County, we will reach out to local communities where high E. coli sampling results occur to continue work to resolve issues.

Outside the GLWA program, environmental unit staff will also be capturing other nutrient results during wet weather events using recently purchased autosamplers This data will be used for internal use only and will not be currently shared with the regional audience at this time.

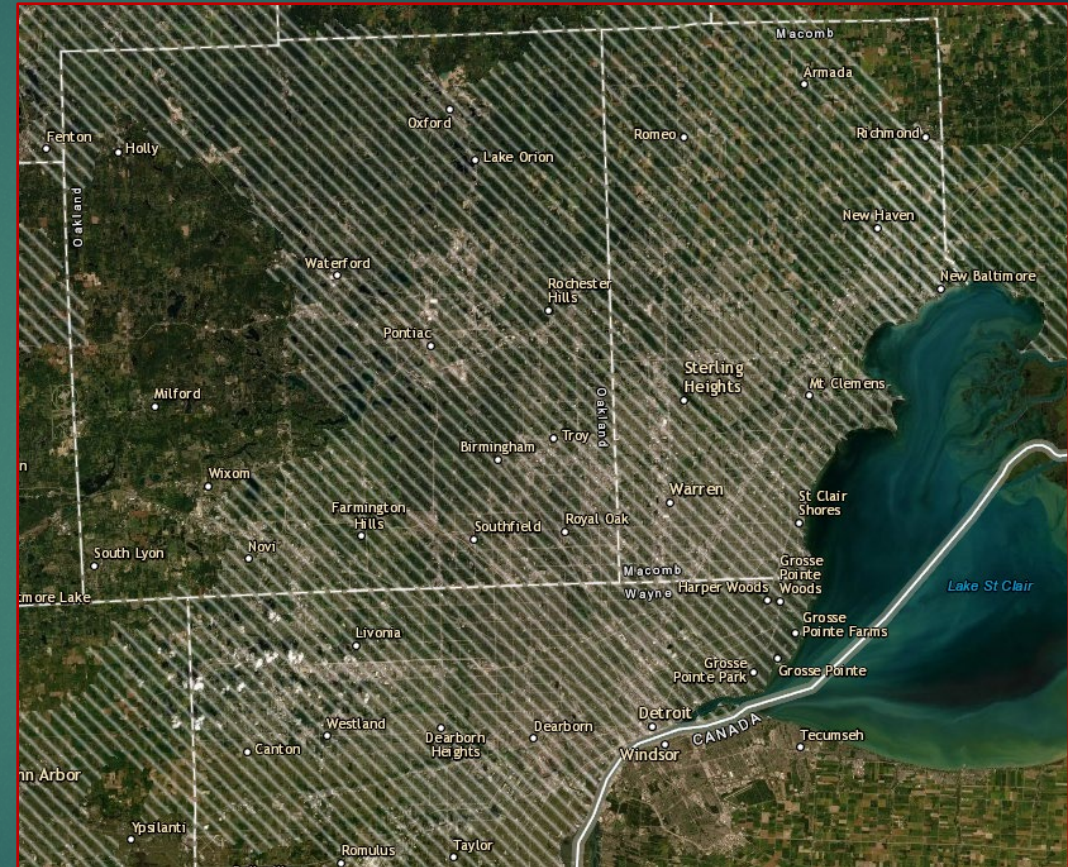
This information with a short PowerPoint was presented at the April 25, 2022, George W. Kuhn Drain Community meeting without any questions or concerns from the local communities.

Recommended Action: Approve \$50,000 for environmental staff to complete sampling work within the GWK Drain Drainage District throughout the 2023 sampling season.

E. coli Impairments across the Region

► Sources:

- Sewage-related
- Animal-related



Goal

- Improve water quality in SE Michigan by identifying where unknown sources of sewage are impacting our waterways



Potential Sewage Sources

- ▶ Illicit connections from sanitary sources to storm drains
- ▶ Infiltration/overflows from sanitary sewers
- ▶ Underperforming septic systems
- ▶ Unexpected discharges from combined sewers

Rationale



Better quality of life in Southeast Michigan



Cleaner water at a better cost



Local control of permit requirements

Objectives

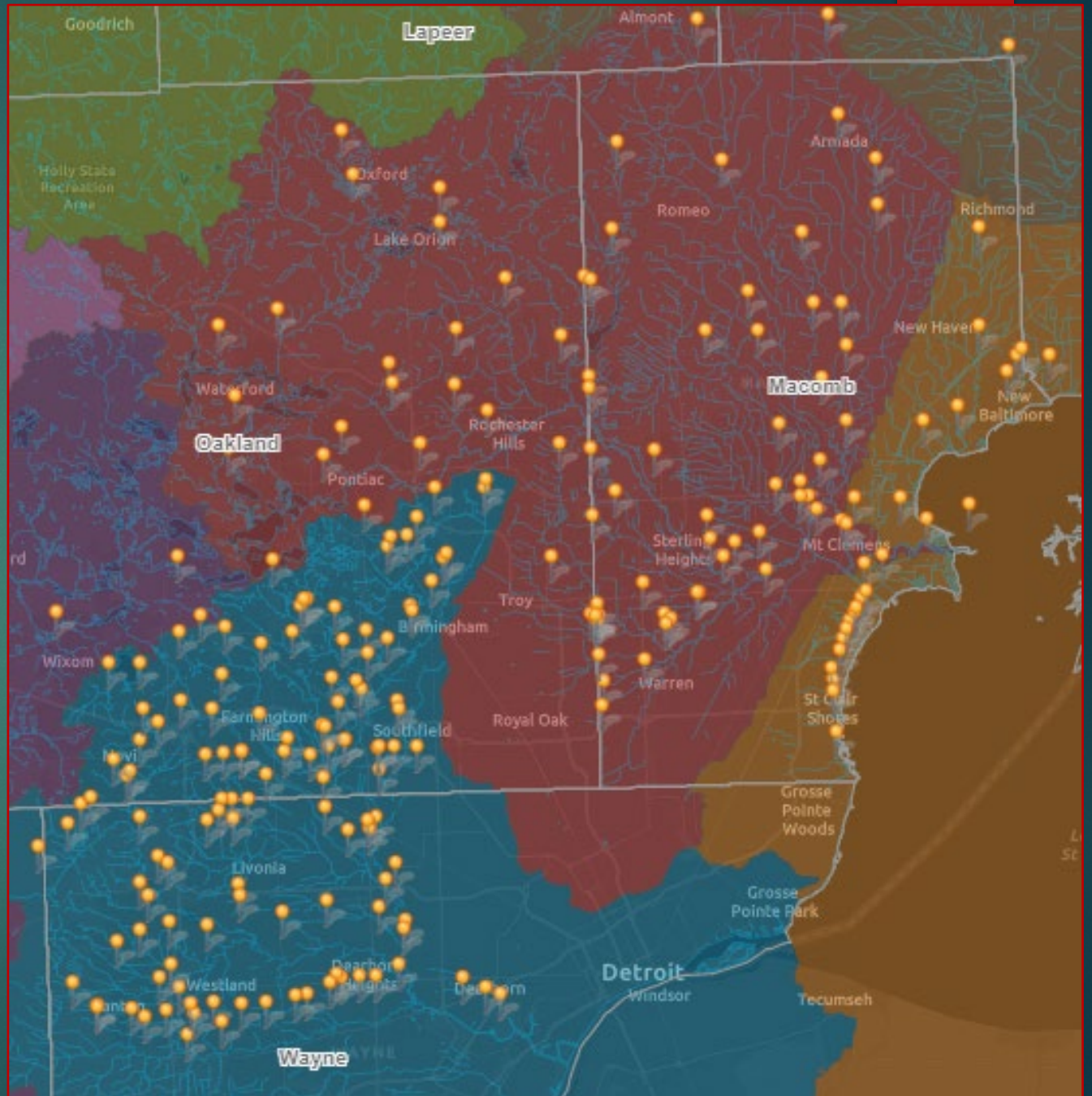
- ▶ Identify stream segments impacted by sewage
- ▶ Identify storm drains impacted by sewage
- ▶ Support permit implementation (stormwater and wastewater)
- ▶ Measure progress for water quality improvements
- ▶ Provide data to regional stakeholders via online platform
- ▶ Create a regional hub for utility information

Sampling Sites, Methods, Frequency

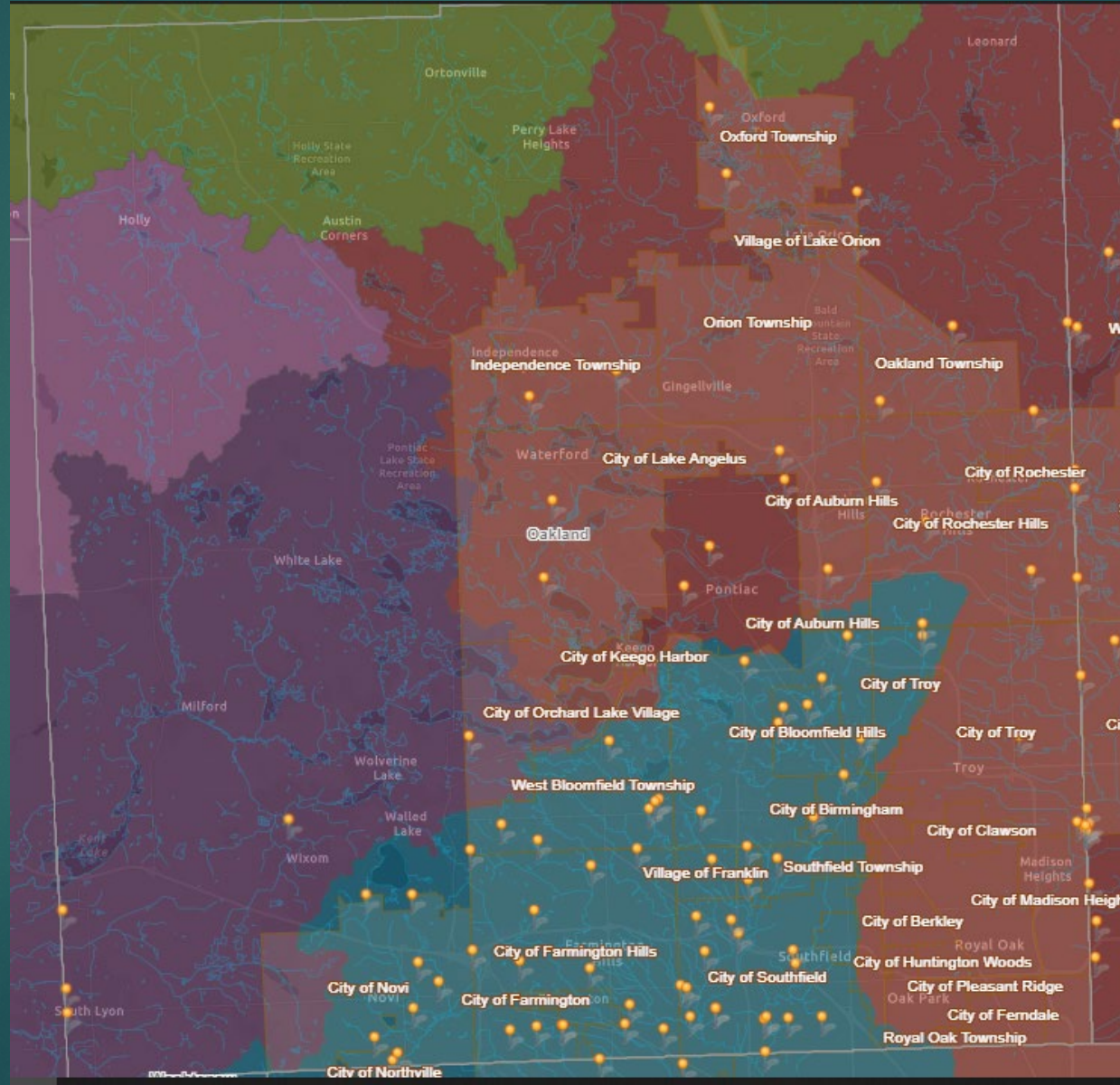
- ▶ Roughly 200 sites selected within GLWA Wastewater Service Area
- ▶ Routine weekly instream samples for *E. coli*
 - 5 months of data collection
- ▶ *E. coli* and human biomarker testing at outfalls within priority stream segments



Working Map of Locations



Working Map of Locations: Oakland County



Data Response and Data Access

- ▶ **Immediate when instream samples above predetermined thresholds and source unknown**
 - Municipalities/Counties – screen outfalls for sewage impacts and assess CSO infrastructure
- ▶ **For high priority stream segments**
 - Watershed Hub – screen outfalls (3 times) for sewage impacts
 - Municipalities/Counties – investigate storm sewers with sewage impacts
- ▶ **Weekly data updates to the watershed hub mapper**
- ▶ **Sanitary and storm infrastructure GIS data available in centralized location**

Example Timeline

Year	Area 1 (Rouge or Clinton Watershed)	Area 2 (Rouge or Clinton Watershed)
0	Develop sampling and quality control plans	
1	<ul style="list-style-type: none">• Conduct instream sampling• Investigate sites with v. high <i>E. coli</i>	Same as Area 1 but delayed by one year
2	<ul style="list-style-type: none">• Determine priority stream segments• Conduct outfall screening in priority segments	
3	<ul style="list-style-type: none">• Begin in-system investigations in priority drains	
4	<ul style="list-style-type: none">• Continue in-system investigations in priority drains	
5	<ul style="list-style-type: none">• Continue in-system investigations in priority drains, if needed	
6	<ul style="list-style-type: none">• Repeat	

Participant Benefits

Will identify the most egregious E. coli sources - which are manageable

Will allow communities to target/prioritize their permit requirements. Examples:

- Stormwater permittees: IDEP investigations, TMDL sampling
- Wastewater permittees: Manage more wet weather flows?
- Collection system permittees: Inspections and maintenance

Will allow communities prioritize infrastructure issues for future funding

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER****MEMORANDUM**

TO: Jim Nash, Chairman
George W. Kuhn Drainage Board

FROM: Stephanie Petriello, Environmental Planner

SUBJECT: GWK Residential Green Infrastructure Pilot Program Proposals for Approval

DATE: January 24, 2023

A proposed three-year residential green stormwater infrastructure (GSI) pilot program for the GWK Drain Drainage District was presented at the December 13, 2022 Drain Board meeting where the Board authorized \$150,000 to be utilized for staff time, contracting and consulting services. WRC has received proposals from the Center for Watershed Protection (CWP) and the Clinton River Watershed Council (CRWC) to aid in the development and further refinement of the pilot program in separate but coordinated capacities.

CWP's proposal (\$45,680) will assist in the foundational development of the GWK GSI Pilot Program. As a national company with both knowledge of and contacts from similar programs around the country, CWP will coordinate meetings between WRC personnel and representatives from those programs. This will allow WRC to discuss lessons learned and tips for success and/or any pitfalls to avoid that those other programs may have experienced in the development or operation of their own systems. CWP will also aid in the development of necessary forms (application, site assessment, etc.), procedures (rebate amounts, payments, inspection, landscaper qualifications, etc.), GSI specifications, and maintenance expectations. Furthermore, CWP will attend monthly Scoping Committee meetings and develop a GIS-based tracking system to record project applications and completed projects. This work will be completed by the end of the year (2023).

CRWC's proposal (\$30,189) will assist in the planning, implementation, and assessment of the GWK GSI Pilot Program. CRWC is a local, trusted, and highly visible non-profit organization that will help WRC promote the pilot program and engage with homeowners through workshops, presentations, and site assessments. CRWC is a member of the Scoping Committee and will be actively involved in monthly meetings and program development. As the program moves toward implementation, CRWC will primarily focus on site assessment visits with homeowners and provide follow up assistance when necessary. This work will be completed over the course of three years (2023-2025).

Board Action Requested:

Authorize CWP and CRWC to commence work outlined in their proposals dated December 20, 2022 and January 10, 2023, respectively, for a not-to-exceed cost of \$45,680 and \$30,189.

Memorandum

Date: December 20, 2022

To: Stephanie Petriello and Lynne Seymour, P.E.
Oakland County Water Resources
Commissioner's Office

From: Greg Hoffmann, P.E.
Center for Watershed Protection, Inc.

Re: GWK Residential Green Stormwater
Infrastructure Pilot Program Proposal



11711 East Market Place, Suite 200
Fulton, MD 20759

Per your request, the Center for Watershed Protection, Inc. (CWP) has developed this scope of work and proposal to assist the George W. Kuhn Drain Drainage District (GWK) with development of residential Green Stormwater Infrastructure (GSI) pilot program. The terms of this agreement are also provided in this document, which will serve as the contract between GWK and CWP once fully executed.

Scope of Work

Task 1. Survey Other GSI Rebate Programs (January – February 2023)

CWP will reach out to representatives for other GSI rebate or stormwater utility credit programs to find out more about their overall program approach and identify their tips for success and/or any pitfalls they have experienced in developing or operating their programs. CWP has close contacts with staff from the Rainscapes program in Montgomery County, Maryland and the StormwaterWise program in Arlington County, Virginia, and will seek out two or three other programs in other parts of the country to get a variety of perspectives. CWP will produce a memo that briefly describes each program and key recommendations from the staff interviewed.

Task 2. Program Outline (March 2023)

Based on the results from Task 1 and discussions with GWK, CWP will develop an outline for the GWK Residential GSI Pilot Program. The outline will provide a brief description of all the elements that need to be created/developed for the program. CWP's initial list of elements is included below. CWP will focus on the elements listed below in italics in the subsequent tasks. The other elements will be developed by the Water Resources Commissioner's Office or other consultants.

- *Eligibility Rules (Task 4)*
- *Application Forms and Materials (Task 4)*
- *Site Assessment Forms and Procedures (Task 4)*
- *GSI Specifications (Task 3)*
- *Planting Plan Recommendations*
- *Rebate Amounts and Payment Procedures (Task 4)*
- *Maintenance Expectations (Task 4)*
- *Construction and Maintenance Inspection Procedures (Task 4)*
- *GSI Tracking System (Task 5)*
- *Landscaper Qualification Procedures (if desired) (Task 4)*
- *Neighborhood Targeting for Pilot Program (Task 4)*

- Logo and Graphic Design
- Website Design and Development
- Public Messaging and Outreach
- Training for Homeowners, Contractors, and Inspectors

Task 3. GSI Specifications (April – June 2023)

The GSI specifications are the heart of any GSI rebate program. They must include clear guidance on how to implement GSIs and clear rules and requirements that determine whether GSI will qualify for reimbursement. CWP will develop specifications for up to five GSI practices. CWP suggests rain gardens, rain barrels, impervious cover removal, permeable pavement, and tree planting, but other GSI practices can be substituted if desired. In order to save time and budget, CWP's work on this task will lean heavily on specifications from other residential GSI programs but be customized as needed for GWK.

Task 4. Rules, Forms, and Other Materials (May - June 2023)

The administrative elements of the program will be developed in this task with significant input and assistance from GWK. Procedural elements will be described in technical memos and forms and other materials will be included as a chapter, section or appendix to the GSI specification document. Responsibility for additional materials that are determined necessary in Task 2 will be discussed and added to this task if appropriate and budget allows.

Task 5. GSI Tracking System (July - August 2023)

CWP will develop a GIS-based tracking system for GWK to keep track of project applications and completed projects. This task will require significant coordination with GWK to ensure that the GIS tools CWP produces are both useable and useful. CWP assumes that GWK has an ARCGIS online account, will host the tracking system, and can provide CWP access to create the tracking system. If this is not the case, alternatives can be discussed. Alternatively, if GWK has an existing asset management system that it prefers to use, CWP will assist as we are able, but may not be able to provide a compatible product.

Task 6. Meeting Attendance (January – December 2023)

CWP anticipates that regular meetings will be beneficial to coordinate between the various partners and keep this project on track. CWP will participate in up to fifteen virtual meetings.

Project Schedule

The project start date is the date of contract execution and all work will be completed within 12 months of the start. CWP expects to complete tasks 1 through 6 by the end of 2023, assuming that contract execution and notice to proceed are granted in January 2023. Task-by-task deadlines will be discussed and CWP will endeavor to complete each task in a manner that facilitates overall project completion on time.

Budget

CWP's cost to complete the above scope is **\$45,680.00**. A detailed task-by-task budget is appended to this proposal.

Contract Terms

The following terms apply to this scope of work:

1. While no expenses are foreseen for this project, any that do arise will be submitted to the client for approval prior to purchase and will be invoiced with a 10% markup.
2. All costs above and beyond the proposed amount will be billed only with prior approval from the client.
3. If the source of funding is federal, a Catalogue of Federal Domestic Assistance number must be supplied to the CWP before the project starts.
4. The Client acknowledges that CWP is a corporation and agrees that any claim made by the Client arising out of any act or omission of any director, officer, or employee of CWP in the performance of this or any other agreement between the parties shall be made against the corporation and not against such director, officer, or employee individually. Any breach of this section shall entitle such director, officer, or employee of CWP to, in addition to all other relief, costs and reasonable attorneys' fees.
5. The Client or CWP may terminate this Agreement at any time, by providing ten (10) days' written notice, for any reason whatsoever. In the event of such termination, CWP will be paid a pro rata amount of the compensation due for work performed up to the date notice of such termination is provided.
6. CWP shall comply with all applicable federal, state, and local laws, rules, ordinances, decisions, and executive orders dealing with affirmative action and nondiscrimination in employment and with subcontracting to disadvantaged, minority-owned, and woman-owned businesses. In addition, CWP shall comply with all policies, plans, and procedures the Client may have with respect to such matters.
7. If this Agreement involves the expenditure of federal funds all required federal clauses are incorporated herein by reference as if fully set forth, including, but not limited to, those clauses found in Title 48 of The Code of Federal Regulations, Chapter 1, Parts 52 and 53 of The Federal Acquisition Regulations. CWP is required to complete all forms and reports required by law and the Client.

If you have any questions or concerns about this proposal, please contact Greg Hoffmann at gph@cwpl.org.

GWK Residential GSI Pilot Program
Cost: \$45,680.00

APPROVED:

Center for Watershed Protection, Inc.

George W. Kuhn Drain Drainage District


Signature

Signature

Hye Yeong Kwon

Name

Name

Executive Director/CEO

Position

Position

December 20, 2022
Date

Date

Appendix A. Detailed Project Budget

Task	Description	Staff	Hours	Rate	Subtotal	Task Total
1	Survey Other BMP Rebate Programs	Chris Swann	32	\$ 125.00	\$ 4,000.00	\$ 4,720.00
		Greg Hoffmann, P.E.	4	\$ 180.00	\$ 720.00	
2	Program Outline	Chris Swann	16	\$ 125.00	\$ 2,000.00	\$ 2,720.00
		Greg Hoffmann, P.E.	4	\$ 180.00	\$ 720.00	
3	BMP Specifications	Chris Swann	40	\$ 125.00	\$ 5,000.00	\$ 13,600.00
		Allison Lee, P.E.	40	\$ 125.00	\$ 5,000.00	
		Greg Hoffmann, P.E.	20	\$ 180.00	\$ 3,600.00	
4	Rules, Forms, and Other Materials	Chris Swann	80	\$ 125.00	\$10,000.00	\$ 12,160.00
		Greg Hoffmann, P.E.	12	\$ 180.00	\$ 2,160.00	
5	BMP Tracking System	Chris Swann	8	\$ 125.00	\$ 1,000.00	\$ 5,160.00
		Jordan Fox	40	\$ 95.00	\$ 3,800.00	
		Greg Hoffmann, P.E.	2	\$ 180.00	\$ 360.00	
6	Meeting Attendance	Chris Swann	24	\$ 125.00	\$ 3,000.00	\$ 7,320.00
		Greg Hoffmann, P.E.	24	\$ 180.00	\$ 4,320.00	
Total Cost:						\$ 45,680.00



CRWC

CLINTON RIVER WATERSHED COUNCIL

50 Years of Dedication

1115 W. Avon Road
Rochester Hills, MI 48309
248-601-0606
www.crwc.org
contact@crwc.org

January 10, 2023

Stephanie Petriello and Lynne Seymour, P.E.
Oakland County Water Resources
Commissioner's Office

Board of Directors

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Stacey McFarlane
1st Vice President
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Communications Specialist
Kaleigh Snoddy
Director of Education and
Stewardship
Pronoye Kapali
Watershed Program
Specialist
TBD
Program Assistant
Janice Sugden
Accountant

RE: GWK Residential Green Stormwater Infrastructure Rebate Pilot Program

Introduction

Promoting residential rain gardens and other nature-based stormwater management practices is a creative solution to reducing runoff from individual properties. Three important and effective practices include constructing rain gardens, installing rain barrels, and planting trees. These techniques are not mutually exclusive and can be used in combination to address unique and property-specific stormwater issues at local to neighborhood scales. Implementing a mosaic of green infrastructure systems throughout a neighborhood can also have positive community benefits, such as fostering a sense of action for residents to protect property, improve water quality, beautify neighborhoods, and increase desirable wildlife habitats.

Supporting residential efforts to control stormwater using nature-based techniques is especially important within urbanized areas that are serviced by a combined sewer system, such as the George W. Kuhn (GWK) Drain Drainage District. This drainage district encompasses all or part of 14 communities (approximately 24,500 acres) upstream of the Red Run Drain, a tributary to the Clinton River. Regular wastewater flow from the district is directed to the Detroit Wastewater Treatment Plant. However, when the volume of wastewater surpasses the capacity of the outlet structure during periods of heavy rainfall or snowmelt, excess flow is held at the GWK retention facility where it is stored, screened, disinfected, and then discharged into the Red Run Drain.

Empowering residents to help limit the amount of stormwater entering the combined system is a key management strategy that has socioeconomic and environmental benefits. Guidance, education, and financial support will be imperative to driving local efforts to sustainably manage stormwater. Ultimately, it will take a neighborhood effort to effect long-lasting changes at community scales.

Proposal

This document outlines a fee-for-service proposal by Clinton River Watershed Council (CRWC) to assist with planning, implementation, and assessment of a pilot residential green stormwater infrastructure (GSI) rebate program developed by Oakland County Water Resources Commissioner's Office (OCWRC) and partnering cities on behalf of the GWK Drain Drainage District. This proposal outlines CRWC-specific activities, deliverables and costs associated with project planning and implementation. All

components are negotiable, and activities can be adjusted to meet the needs of the project vision. Questions, comments, or concerns can be directed to Chris Bobryk at chris@crwc.org.

Scope of Work

The goal of this project is to provide technical and educational support services specific to residential-based green stormwater infrastructure planning and construction. Additional services will include public education, engagement, and promotion. Tasks for this project will span a three-year period and include the following:

Task 1 (2023 – 2025)

Community Resource Development: Produce training and other educational materials for residents to learn and participate in the GSI rebate program. This task may include creation of short ‘how-to’ videos for installing a variety of green stormwater infrastructure systems and distribution of educational materials that include written and digital media available to a broad, diverse audience.

Task 2 (2023 – 2025)

Community Engagement and Communications: Providing in-person and virtual presentations to each community within the GWK Drain Drainage District that describes the processes involved in the GSI rebate program and general benefits of green stormwater infrastructure systems. Data from participant surveys and other methods will be used to collect resident feedback and help in planning future presentations.

Task 3 (2024 – 2025)

Site Assessments: CRWC staff will conduct site assessments requested by homeowners that live within the GWK Drain Drainage District. These assessments will be performed to determine the types of green stormwater infrastructure systems that are appropriate and eligible for rebates under the direction of the GSI rebate program. Specific assessment activities will be conducted in accordance with consultant and OCWRC recommendations; however, potential activities may include, i) understanding the goals and objectives of the homeowner, ii) assessing property characteristics (soil and topography, obstacles to green infrastructure), and iii) documenting reasonable green infrastructure systems that homeowners can implement. Potential deliverables include a site assessment report and recommendations provided to the homeowner and OCWRC.

Please note: Homeowners that request a site visit for their property will be required to submit a payment of \$25.00 to the Clinton River Watershed Council, which will activate assessment services. The \$25.00 payment is considered in the site assessment costs below, which decreases the rate for the 1-hour site investigations (Please see Task 3A in the Budget section).

Task 4 (2023 – 2025)

Project Administration: This task provides space for CRWC staff to designate time for coordinating and attending committee/partner meetings, report generation, and data management.

Budget

Proposal Budget for Year 2023

Planning

Task	Description	Staff	Hours	Rate (\$)	Total
1	Resource Development	Planner	100	35	\$3,500
2	Engagement/Communications	Planner	100	35	\$3,500
3	Site Assessments (up to 35 sites at 3hrs)	Planner	0	35	\$ -
*3A	Homeowner Assessment Fee	Planner	0	10	\$ -
4	Project Administration	Planner	50	35	\$1,750
				Subtotal	\$8,750
				Overhead (15%)	\$1,313
				Total	\$10,063

Proposal Budget for Year 2024

Planning and Implementation

Task	Description	Staff	Hours	Rate (\$)	Total
1	Resource Development	Planner	50	35	\$1,750
2	Engagement/Communications	Planner	45	35	\$1,575
3	Site Assessments (up to 35 sites at 3hrs)	Planner	105	35	\$3,675
*3A	Homeowner Assessment Fee	Planner	35	10	\$350
4	Project Administration	Planner	40	35	\$1,400
				Subtotal	\$8,750
				Overhead (15%)	\$1,313
				Total	\$10,063

Proposal Budget for Year 2025

Planning and Implementation

Task	Description	Staff	Hours	Rate	Total
1	Resource Development	Planner	50	35	\$1,750
2	Engagement/Communications	Planner	45	35	\$1,575
3	Site Assessments (up to 35 at 3hrs)	Planner	105	35	\$3,675
*3A	Homeowner Assessment Fee	Planner	35	10	\$350
4	Project Administration	Planner	40	35	\$1,400
				Subtotal	\$8,750
				Overhead (15%)	\$1,313
				Total	\$10,063

*The entire site assessment process is anticipated to take up to 4 hours. This line item subtracts the \$25.00 homeowner property assessment fee (1-hour site visit) from CRWC hourly rate.

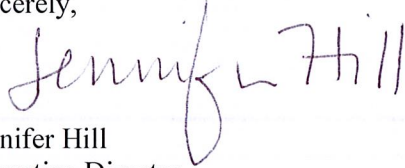
Timeline and Potential Activities (subject to change)

Clinton River Watershed Council - Green												
Project Name: GWK Residential Green Stormwater Infrastructure Rebate Pilot Program												
Project Time Table: 2023-2025												
Task Name	Q1: Jan-Mar	Q2: Apr-Jun	Q3: Jul-Sep	Q4: Oct-Dec	Q1: Jan-Mar	Q2: Apr-Jun	Q3: Jul-Sep	Q4: Oct-Dec	Q1: Jan-Mar	Q2: Apr-Jun	Q3: Jul-Sep	Q4: Oct-Dec
1. Resource Development												
a. Attend meetings, receive feedback, collaborate with partners on resource materials												
b. Produce training materials via written and virtual media (e.g., flyers, videos, posts, etc.)												
2. Engagement and Communications												
a. Attend meetings, receive feedback, collaborate with partners on engagement materials												
b. Develop and provide in-person and virtual presentations												
c. Compile participant feedback and other associated data												
3. Site Assessments												
a. Conduct site visits												
b. Compile information and produce reports												
c. Provide technical assistance to homeowners												
d. Be point-of-contact for additional resources												
4. Project Administration												
a. Prepare project reports as necessary												
b. Schedule and attend meetings as necessary												
b. Track activities performed												

Based on the above tasks, current estimate of costs and our estimate of effort needed to complete this assignment, we propose a not to exceed budget of \$30,189.00.

Thank you for your time and serious consideration of CRWC's proposal. Please let me know if you have any questions or would like additional information.

Sincerely,



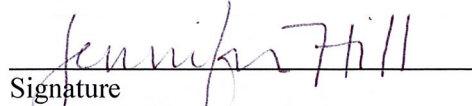
Jennifer Hill
Executive Director
Clinton River Watershed Council

GWK Residential GSI Pilot Program

Cost: \$30,189.00

APPROVED:

Clinton River Watershed Council


Signature

JENNIFER HILL
Name

Executive Director
Position

January 10, 2023
Date

George W. Kuhn Drain Drainage District

Signature

Name

Position

January 10, 2023
Date

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the GEORGE W. KUHN DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting

for Shawn Phelps

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

Payable To	Ref No.	For	Amount
Orchard Hiltz & McCliment Inc	V # SIN00155188	Invoice # 57757 - Professional Services - 11/19/22	\$ 2,329.16
Dickinson Wright PLLC	V # SIN00154045	Invoice # 1762819 - Legal Services - 11/30/22	73,874.57
D'Angelo Brothers Inc	TBP	Invoice # 8304 - Contracted Services - 04/04/22	13,450.51
Hubbell Roth & Clark Inc	TBP	Invoice # 0203231 - Contracted Services - 01/07/23	496.88
		Total	\$ 90,151.12
Hubbell Roth & Clark Inc	V # SIN00155365	Invoice # 0202533 - Contracted Services - 11/12/22	\$ 1,006.91
		Subtotal Project # 1-7120	\$ 1,006.91
Hubbell Roth & Clark Inc	V # SIN00154050	Invoice # 0200369 - Contracted Services - 09/17/22	\$ 2,375.11
		Subtotal Project # 1-3484	\$ 2,375.11
ICS Integration Services LLC	V # SIN00151882	Invoice # 2537 - Contracted Services	\$ 4,165.00
		Subtotal Project # 1-3442	\$ 4,165.00
ICS Integration Services LLC	V # SIN00153555	Invoice # 2552 - Contracted Services	\$ 64,096.50
ICS Integration Services LLC	V # SIN00155170	Invoice # 2581 - Contracted Services	24,099.89
		Subtotal Project # 1-3408	\$ 88,196.39
Orchard Hiltz & McCliment Inc	V # SIN00148075	Invoice # 44682 - Contracted Services - 09/21/21	\$ 4,790.75
Orchard Hiltz & McCliment Inc	V # SIN00148073	Invoice # 51739 - Contracted Services - 05/21/22	1,882.50
Orchard Hiltz & McCliment Inc	V # SIN00148070	Invoice # 56742 - Contracted Services - 10/15/22	420.00
Orchard Hiltz & McCliment Inc	V # SIN00153463	Invoice # 57753 - Contracted Services - 11/19/22	1,210.00
		Subtotal Project # 1-3670	\$ 8,303.25
		Total	\$ 194,197.78

8. McCulloch Drain

AGENDA

DRAINAGE BOARD FOR THE MCCULLOCH DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of October 25, 2022
3. Public Comments
4. Present Memorandum from Geoff Wilson, P.E., Assistant Chief Engineer, dated January 24, 2023, requesting the Board receive and file Fishbeck's Engineering Report regarding maintenance recommendations
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE MCCULLOCH DRAIN**

October 25, 2022

A meeting of the Drainage Board for the McCulloch Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 25th day of October 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held July 26, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

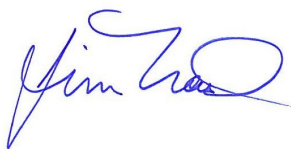
A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$6,036.25 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$6,036.25.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.



Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the McCulloch Drain, Oakland County, Michigan, held on the 25th day of October 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the McCulloch Drain Drainage District.



Jim Nash, Chairperson

Dated: October 25, 2022

**OAKLAND COUNTY
WATER RESOURCES COMMISSIONER****MEMORANDUM**

TO: Jim Nash, Chairman - McCulloch Drain Drainage Board

FROM: Geoff S. Wilson, P.E. – Assistant Chief Engineer

SUBJECT: Receive and File – Engineering Report RE: Enclosure Condition Assessment, Hydraulic Analysis, Maintenance Recommendations, and Future Use Recommendations
McCulloch Drain – Near Big Beaver Road and Rochester Road, Troy

DATE: February 25, 2020

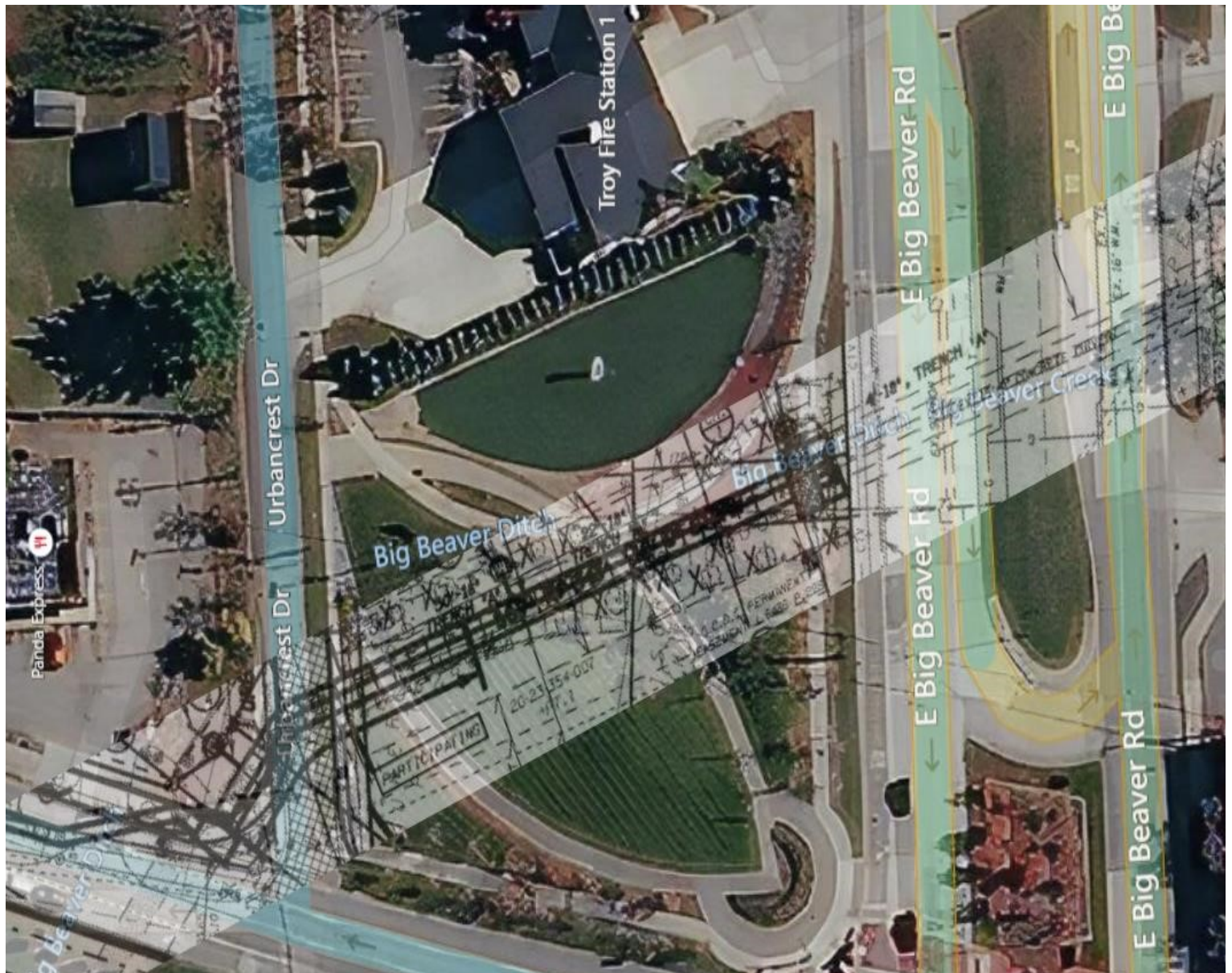
An enclosed portion of the McCulloch Drain in the City of Troy was constructed in 1999 ahead of future plans to lower and enclose the entirety of the Sturgis Drain from the Big Beaver Road and Rochester Road intersection to the eventual downstream outlet of the Sturgis Drain into the Henry Graham Drain. This portion of the McCulloch Drain was intended to be temporarily lower than the rest of the drain. The plan to lower and enclose the downstream portions of the Sturgis Drain has never come to fruition and is not included in the long term plans for the City of Troy.

Fishbeck was hired by the board to study the enclosed portion and make maintenance recommendations. The study found the 12 feet diameter enclosed portion acts as a hydraulic restriction in the 100-year event when it becomes filled with three feet of sediment or more, and restricts the 10-year event when it becomes filled with six feet of sediment or more. Sediment levels vary between 4 and 5 feet in the enclosed portion.

Fishbeck analyzed different techniques to clean the system, and to keep the system clean in the future. The estimated one-time cost of cleaning the enclosed portion is \$1,400,000, but with certain modifications that cost could come down and with different operations, encourage a more natural cleaning through scouring the system.

Staff will work with contractors to better develop the cost estimates for the maintenance and/or improvements. The City of Troy pays the majority of the apportionment, and has been made aware of the need for upcoming maintenance. Future board action will be needed for staff to proceed with the maintenance and or/improvements.

Recommendation: Receive and File Fishbeck Report



Sturgis Drain Culvert – Intersection of Rochester and East Big Beaver Roads Condition Assessment

Project No. 200855
September 9, 2022

Sturgis Drain Culvert – Intersection of Rochester and East Big Beaver Roads Condition Assessment

**Prepared For:
Oakland County Water Resources Commissioner
Troy, Michigan**

**September 9, 2022
Project No. 200855**

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List of Appendices

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Appendix 2	Soil Analytical Laboratory Report
Appendix 3	Twin Arch Culvert PACP Reports
Appendix 4	Hydraulic Analysis – Existing and Proposed
Appendix 5	Bilco Plate Brochure
Appendix 6	Doetsch Quote for Clean out
Appendix 7	Rochester Road Flooding Event Photolog (February 17, 2022)
Appendix 8	Engineers Opinion of Probable Conceptual Costs

List of Abbreviations

City	City of Troy
County	Oakland County
Drain	Sturgis Drain
EPA-SWMM	Environmental Protection Agency-Storm Water Management Model
EGLE	Michigan Department of Environment, Great Lakes, and Energy
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
HEC	Hydrologic Engineering Center
HY-8	Culvert Hydraulic Analysis Program
lbs	Pounds
M	million
NFIP	National Flood Insurance Program
OCWRC	Oakland County Water Resources Commissioner
O&M	Operation and Maintenance
PACP	Pipe Assessment Condition Program
RAS	River Analysis System
Siphon	Siphon Culvert
USACE	United States Army Corps of Engineers

Background

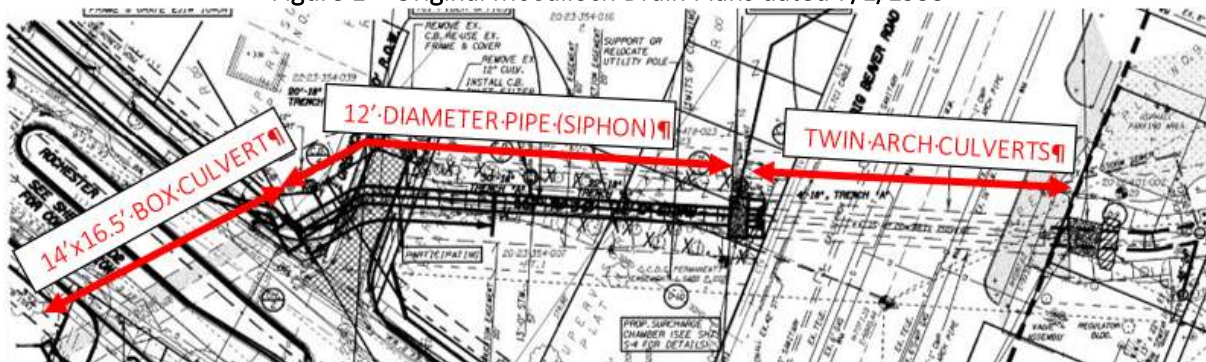
Fishbeck was engaged to investigate the condition of the existing culvert system at the intersection of Rochester and Big Beaver Roads in the City of Troy (City), Oakland County (County), and to analyze the impacts of sediment levels in the system. The culvert system encloses the McCulloch Drain and Sturgis Drain (Drain) and is an open channel upstream and downstream. Services includes a condition assessment of the existing culvert system as well as the hydraulic performance, maintenance, and/or reconstruction recommendations to improve the system.

Review Existing Available Drainage System Plans

The County McCulloch Drain Plans dated 7/1/1999 indicate the proposed culvert improvements including three (3) culverts were installed in series with two (2) connecting junction boxes starting at the culvert inlet west of Rochester Road and ending at the existing drainage channel south of Big Beaver Road. The entire system crosses Rochester Road, the Fire Department property (Gateway Park), and Big Beaver Road. The open portion of the Drain flows east and then drops into a 14-x-16.5-foot box culvert that runs under Rochester Road. The box culvert's invert is approximately 9 feet lower than the open Drain. The box culvert then enters a junction chamber and transitions to a 12-foot diameter circular concrete pipe that runs southeast under Gateway Park. This portion of the culvert operates as a Siphon Culvert (Siphon) after a storm event. The circular pipe then enters a surcharge chamber and transitions to twin 12-foot-8-inch-x-8-foot-1-inch corrugated metal arch pipes that run south under Big Beaver Road. The invert of the arch pipes is approximately 9 feet higher than the circular pipe invert. The arch pipes outlet into an open Drain to the south side of Big Beaver Road. A stubbed enclosure of the drain consisting of a 15 feet diameter pipe beneath the Big Beaver Road culverts are indicated in the 1999 plans for future enclosure of the open Drain, downstream of Big Beaver Road. However, the Oakland County Water Resources Commissioner (OCWRC) does not intend to pursue the previously planned enclosure of the Drain. The 12-foot diameter culvert beneath the Fire Station property, originally intended to connect to the future enclosed drain, now acts as a partial Siphon and contains several feet of sediment.

The plans also indicate a 78-inch storm sewer system along Rochester Road draining into the junction chamber at the intersection of Rochester Road and Urbancrest Drive. A 12-inch water main is indicated over the top of the Siphon running north-south along Rochester Road. Refer to Figure 1 – Original McCulloch Drain Plans dated 7/1/1999, see below:

Figure 1 – Original McCulloch Drain Plans dated 7/1/1999



Site Evaluation

A site evaluation consisting of visual inspection and sediment measurements was performed on April 22 and 23, 2021. The site log is attached to this report. The findings from the site evaluation are summarized in the technical memorandum dated May 18, 2021. Detailed in Appendix 1 – Technical Memorandum – Site Evaluation, attached.

Observations from the site evaluation confirmed sediment and debris build-up has reduced the cross-sectional area of the culvert system and subsequently reduced the capacity of the culverts, confirming the current configuration traps sediment/debris, and will continue to require periodic clean out for as long as the existing system is in use. Redesigning the series of culverts to eliminate the Siphon would reduce the frequency of maintenance and extend the life of the culverts. Sediments levels were measured in the 14-x-16.5-foot box culvert underneath Rochester Road, the two (2) junction boxes, and in the Twin Arch Culverts. Sediment levels were not obtained in the 12-foot diameter culvert under the Fire Station because standing water levels in the culvert restricted entry to the culvert. Sediment was measured to be approximately 5.8 feet deep in the Rochester Road junction box and 8.3 feet deep in the junction box outside of Big Beaver Road. It was assumed that the sediment level in the 12-foot diameter Siphon matches the level in the 14-x-16.5-foot box culvert since the inverts are at a similar elevation.



Samples of the accumulated sediment within the culvert system were taken at the time of the site visit. A sediment classification analysis was performed by G2 Consulting Group, LLC, which will be available to give to a landfill for proper soil disposal (refer to Appendix 2 – Soil Analytical Laboratory Report, attached).

The Twin Arch Culverts underneath Big Beaver Road were evaluated and given Pipe Assessment Condition Program (PACP) ratings (refer to Appendix 3 – Twin Arch Culvert PACP Reports, attached). Sedimentation and debris were notably built up in both culverts. The west culvert was evaluated to have an Operation and Maintenance (O&M) condition index rating of 3.3, while the east culvert was given an O&M condition index rating of 4.2. Both culverts were rated in good structural condition, with no structural defects noted. Build-up of sediments, rocks, and debris were the only maintenance items noted in the report.

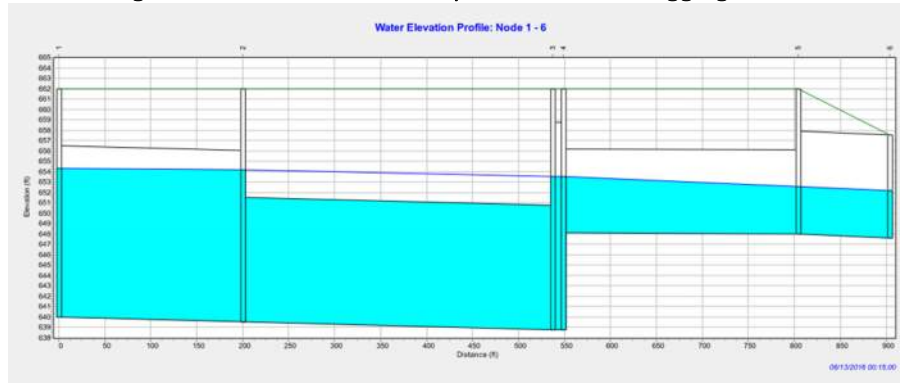
A topographic survey of the stream channel extending 200 feet downstream of the culvert system was also conducted. The survey was used for the hydraulic models and to develop clean out recommendations of the downstream channel.

Hydraulic Model

The hydraulics of the existing culvert system was analyzed using two (2) modeling programs. The models were developed to determine the capacity of the existing system, the hydraulic performance under given sediment levels, and develop a recommended maintenance schedule. Two (2) different modeling software packages were used for the analysis due to the unique nature of the culvert system, which consists of several pipe shapes, a Siphon, and a surcharge chamber. Multiple programs were used to validate the results between programs. The programs are the Culvert Hydraulic Analysis Program (HY-8) and Environmental Protection Agency-Storm Water Management Model (EPA-SWMM). The models were based on the geometries of the existing culvert system.

The EPA-SWMM model gave hydraulic performances for the three culverts in the system for 10-year and 100-year storms. The 10-year and 100-year storm headwater elevations were compared to the water surface elevations from the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS). Assuming no sedimentation, the water surface elevations in the system are lower than the flood elevations for a 10-year and 100-year flow (Appendix 4 – Hydraulic Analysis – Existing and Proposed, attached). The model was then adjusted to account for varying levels of sediment within the culvert system, reducing the hydraulic capacity. The model simulated 1-foot increments of sediment, from 1 to 6 feet. The sediment level was assumed to be the same elevation through the first two (2) depressed culverts of the system. The results found the system continues to have capacity for a 10-year compared with the FIS with 6 feet or lower of sediment, and a 100-year storm if the sediment level is 3 feet or lower. Refer to Figure 2 – Modeled Culvert System without Clogging Factor, see below:

Figure 2 – Modeled Culvert System without Clogging Factor



Sediment levels greater than 6 feet were not evaluated because this was the measured level of sediment in the field, and it is expected velocities within the culvert are preventing further accumulation. Without further measurements over time to confirm this assumption, it is difficult to extrapolate a time frame of potential additional sediment accumulation.

Each of the modeling programs used has a different calculation engine but provided similar results and have been compared to the flood profile in the FIS. It is likely the FIS was prepared in United States Army Corps of Engineers (USACE)'s Hydrologic Engineering Center (HEC)-2 software program, which was the predecessor to the HEC-River Analysis System (RAS) software program. Although comparing results between multiple software packages does not provide a perfect comparison, it has given a decent general understanding as to the impacts of the varying levels of sediment in the culverts. An analysis that would satisfy the FEMA National Flood Insurance Program (NFIP) would involve converting the HEC-2 model to a HEC-RAS model and matching the results in the FIS, updating the HEC-RAS model to incorporate existing culvert and stream conditions, and then preparing a proposed conditions model. This analysis was not included as part of this study.

By linear extrapolation beginning from the date of construction of the Siphon System, the culverts reach 3 feet of sediment over the course of 10 years, which is the recommended timeframe between scheduled culvert cleaning and maintenance.

The model also analyzed the culvert system with a proposed 14-x-8-foot precast box culvert replacing the 12-foot diameter concrete culvert and eliminating the Siphon Condition. The results found the system would have capacity for a 10-year and 100-year storm event (Appendix 2) compared to the FIS.

Maintenance and Reconstruction Options

The cost of cleaning out the debris built up in the Siphon and the Twin Arch Culverts was quoted by Doetsch Environmental Services, Inc. at \$1.2 million (M). The total cost includes an \$890 per ton of debris removal unit price. The estimated weight of sediment in the 12-foot diameter concrete pipe is 920 tons, and the debris in the Twin Arch Culverts is estimated to be 400 tons. Additional assumptions included in the quote include: a temporary lane closure (assumed Rochester Road), all debris to be hauled to Waste Management landfill, and utilizing space at culvert opening south of Big Beaver Road for laydown area. The work is estimated to take 130 days.

Alternately, several conceptual construction options to improve the existing system and reduce the maintenance were analyzed for feasibility. Currently, the Siphon is not ideal since the culvert may continue to accumulate sediment over time, particularly if the culvert is cleaned out, which will maintain a reduced capacity of the culvert. Maintenance clean outs will most likely continue to be scheduled over the lifespan of the culvert system. Difficulties with each option are discussed. The options analyzed by Fishbeck included a bypass overflow pipe, a maintenance gate system, chamber modifications to provide equipment access, and other minor ease of maintenance modifications. The feasibility of reconstructing the culvert to remove the Siphon was also analyzed. These options were intended to reduce the maintenance required and/or improve the performance of the overall culvert system but may not be recommended for different reasons.

An overflow bypass pipe installed between the junction boxes was discussed, which would increase hydraulic capacity. The pipe would be jack and bored or directionally drilled under the Fire Station property and would require structural modifications to the existing junction boxes. The pipe would be sized to increase the capacity and keep the water level during a 100-year storm to below the FIS 100-year level. However, this assumes sediment will not continue to build up in the Siphon due to high velocity flows flushing the Siphon during heavy rainstorms.

Another alternative discussed was the addition of two (2) maintenance gates, which would consist of a closure gate at the upstream inlet capable of storing water in the upstream channel. Temporarily restricting flow would allow access for condition assessment. Upon opening the gate, the stored volume of water in the upstream open channel would be flushed down the Siphon, resuspending and transporting the accumulated debris further downstream. This type of flow, which is typically seen during a storm event, would route a sudden and debris-filled volume of water downstream through several residential and commercial areas. Approval may be required from Michigan Department of Environment, Great Lakes, and Energy (EGLE) for a maintenance gate system. The maintenance gates would require reinstalling the inlet grates and improving the upstream hydraulic channel. The estimated construction cost would be approximately \$269,100.

If the Siphon pipe is not reconstructed it is recommended to modify the junction chamber in Rochester Road to allow equipment access into the junction chamber and Siphon. Work would consist of removing and replacement roadway pavement over the existing junction chamber and reconstructing the junction chamber top. Figure 3 – Junction Chamber Location (below), indicates the location of the junction chamber that will be modified. The reconstructed junction chamber top would include an 8-x-8-foot lifetable slab that could be removed to allow access for equipment. The construction cost range for an access manhole is estimated to be approximately \$165,935.

Figure 3 – Junction Chamber Location



As was mentioned in the model section of this report, a 14-x-8-foot box culvert was determined to be a suitable hydraulic replacement of the Siphon which would perform adequately for the 10-year and 100-year storm. This option would only require the maintenance that is typical for a culvert system, eliminating the significant and costly need to clean out every 10 years. The expected lifespan of a concrete culvert is at least 75 years, so with a culvert that is already 20 years old, and a maintenance schedule of at least one cleaning every 10 years, the cost savings from maintenance could equal roughly \$4.8M. A cost estimate was not prepared for the culvert construction. This calculation could be performed for an additional fee; however, the cost is certain to be several times higher than the clean out cost of \$1.2M.

Maintenance Recommendations

Various maintenance items are recommended to improve the overall safety and performance of the culvert system, summarized in Table 1 – Maintenance Recommendations, see below.

It was noted during the field visit the gate sitting on the culvert inlet headwall was loose when pushed on. Reconstruction and/or structural improvements are recommended for the gate to improve safety. It is recommended the gate stay locked when not in use. Refer to Figure 4 – Culvert Inlet Gate.

Figure 4 – Culvert Inlet Gate



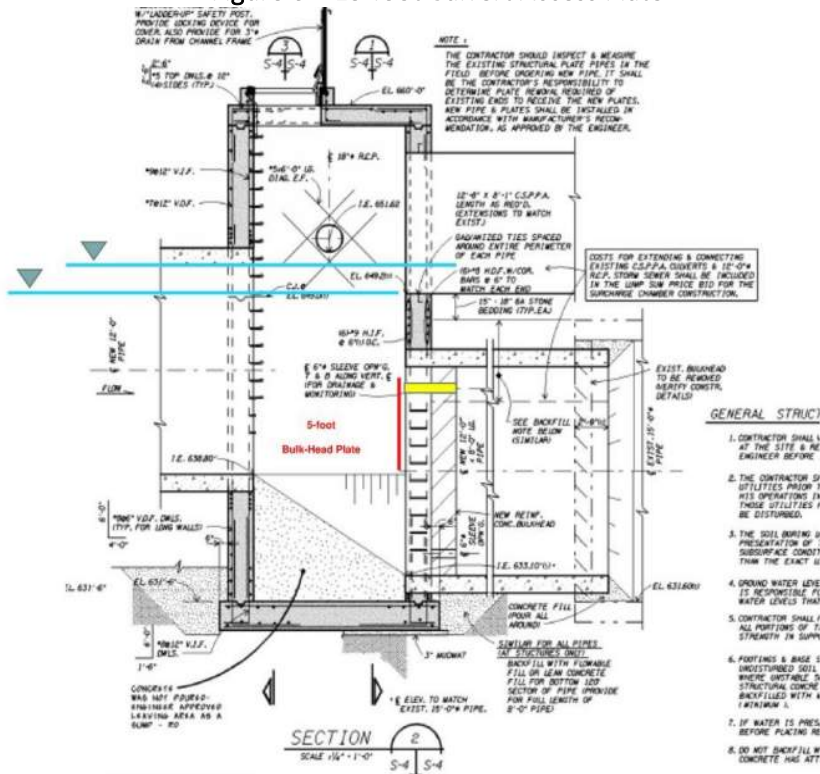
The slotted grate at the Rochester Road culvert inlet has built up debris and sediment. Clean out at this location is recommended as well as a review of the frequency of cleaning to ensure proper flow into the culvert system. The metal grate on the inlet was observed to be bent slightly, potentially allowing access into the culvert. It is recommended that the vanes on the inlet gate be straightened for safety purposes.

The outlet structure grate of the western Twin Arch Culverts is partially removed and allows easy entrance into the culvert. For safety purposes and to restrict access into the culvert, it is recommended the outlet structure be reconstructed or reattached. Refer to Figure 5 – Culvert Outlet Gate. It is noted the culvert will require sediment clean out more frequently after the outlet structure is attached, assuming the structure was removed to either ease maintenance or to reduce debris build up in the culverts. Currently, there is increased sedimentation in the east arch culvert compared to the west arch culvert. Three (3) warning signs should be installed at the outlet, reading “Danger, No Entry”.

Figure 5 – Culvert Outlet Gate



Figure 6 – 15-foot Culvert Access Plate



Another recommendation is to install fall protection grating at the existing junction box 4-x-4-foot access plate located north of Big Beaver Road. The fall protection grating should be a minimum of 300-pounds (lbs) per square foot (SF) loading and could be retrofitted onto the existing plate or part of a reconstructed plate access. Figure 6 – 15-foot Culvert Access Plate. An informational packet demonstrating a 4-x-4-foot access plate with fall protection from Bilco is included in Appendix 5 – Bilco Plate Brochure, as well as specifications from the supplier and a quote for the materials.

Regrading the stream channel downstream to restore positive drainage downstream of the culvert outlet will be beneficial for

the hydraulic performance of the system. Based on Fishbeck's survey, regrading 200 feet from the culvert outlet will require excavating approximately 100 cubic yards of soil. Regrading the channel will also ensure less sedimentation in the Twin Arch Culverts.

An access plate is recommended to be installed for the 15-foot diameter culvert underneath the Twin Arch Culverts. The culvert is currently closed off and bulkheaded, a 3-x-5-foot access plate installed at the junction box upstream of the culvert would allow inspection and maintenance. A steel fold-up step would be installed at the base of the access plate and a steel rail would be installed at the crown of the 15 feet culvert for ease of access and for a camera. The cost for materials and construction of an access plate is estimated to be approximately \$96,200.

Table 1 – Maintenance Recommendations

Maintenance Recommendations	Description of Work	Cost Estimate (or performed internally)
Chain Link Reconstruction	Reconstruct the access chain link fence on top of the existing culvert inlet.	(Performed internally)
Clean out channel at inlet grate	Clean out the excess material built up at the grate at the culvert inlet.	(Performed internally)
Straighten inlet grate	Straighten the metal vanes on the inlet grate to restrict access into the culvert.	\$5,000 (or performed internally)
Replace/Reinstall Outlet Grate	Reattach the existing grate to the culvert outlet or construct a new outlet grate structure.	Unknown (performed internally)
Fall Protection for the Junction Box Access	Install a 300-lbs per SF rated fall protection grating for the junction box between the Siphon and Twin Arch Culverts underneath Big Beaver Road. Installation can be a retrofit onto the existing plate or a reconstruction of the vault plate access (new cover).	Retrofit – \$1,000 Install new – \$5,200

Maintenance Recommendations	Description of Work	Cost Estimate (or performed internally)
Regrade channel	Regrade the downstream channel to 200 feet from the existing outlet, remove approximately 100 cubic yards of excess soil material.	\$40,000
Siphon and Twin Arch Culvert Clean out	Remove approximately 1,320 cubic yards of sediment built up in the Siphon and Twin Arch Culverts. (Original quote increased 15% to account for inflation.)	\$1,400,000 (see attached Appendix 6 – Doetsch Quote for Clean out)
Culvert Inlet Maintenance Gate	Install two (2) 9-x-7-foot maintenance gates at the culvert inlet west of Rochester Road. Remove and reconstruct inlet grate. Clean out sediment and debris in front of inlet.	\$270,000
Chamber Access Modification	Reconstruct the existing top of the junction chamber at Rochester Road and Urbancrest Drive to provide an 8-x-8-foot liftable concrete slab access location for personnel and equipment.	\$166,000
Access Plate for 15-foot Culvert	Construct a 3-x-5-foot access plate to the 15-foot bulkheaded culvert underneath Big Beaver Road. Install fold up steel platform beneath access plate and install an internal camera rail system for future inspection.	\$100,000

Report Recommendations

It is Fishbeck's recommendation that two (2) maintenance gates be designed and constructed at the culvert inlet, the junction chamber in Rochester Road and Urbancrest Drive intersection be modified, and construction of an access plate to the 15-foot culvert. The estimated cost range for this work is \$166,000 for the junction chamber modification, \$270,000 for the maintenance sliding gates, and \$100,000 for the access plate and camera rail system for a total estimated construction cost of \$536,000 for both recommendations to be built as one project. It is recommended the maintenance gates be operated and observed prior to setting a maintenance schedule (bi-annually, annually, etc.).

Alternately, the County could choose to schedule a clean out of the existing Siphon and Twin Arch Culverts under Big Beaver Road for the \$1.4M that was quoted by the contractor. The sediment removal will ensure the system can perform hydraulically better than the 100-year FIS.

Fishbeck also recommends the County schedule the other maintenance recommendations as found in this report. It is our recommendation that if no clean out or reconstruction occurs on the Siphon, the County periodically measure the sediment in the junction boxes upstream and downstream of the Siphon and, if possible, within the culverts under Rochester and Big Beaver Roads. Measurements should be taken bi-annually to accurately observe sediment levels. The County should keep a log of measured sediment levels to obtain an accurate rate of sedimentation within the culvert system. A maintenance plan should be developed based on the measurements.

Appendix 1

Technical Memorandum – Site Evaluation

TECHNICAL MEMO

SUBJECT: Geoff Wilson, Oakland County Water Resources Commissioner – Sturgis Drain Site Visit and Evaluation

DATE: May 18, 2021

PROJECT NO.: 200855

Introduction

Oakland County has requested Fishbeck to perform a site visit of the Sturgis Drain culvert system which runs underneath Rochester Road, the City of Troy Fire Station No. 1 property, and Big Beaver Road. The intention of the site visit was to collect general culvert information necessary to prepare the culvert condition assessment. Fishbeck was to work with Doetsch to dewater the culvert system, evaluate sediment levels and perform a condition assessment Pipeline Assessment and Certification Program (PACP) on each section of culvert. The drain crosses diagonally, from northwest to southeast, starting on the west side of Rochester Road and ending on the south side of East Big Beaver Road. The crossing consists of three separate culvert systems with a junction chamber and surcharge chamber connecting the segments. Further information on the existing culvert system including a timeline of construction and the scope of work for this project are found in Fishbeck's proposal letter dated January 21, 2020.



Observations

Fishbeck was onsite April 22 and 23, 2021. Doetsch was also onsite during that time with a five-man crew. The attached Observation Reports catalogue the two-day timeline of the site visit. Fishbeck was able to work with Doetsch to gather information on the existing system. Due to the base flow being higher than expected, limited access, and the difficulty in providing an adequate bypass, the assessment of the culverts was limited in scope. A pump was left running overnight with a Doetsch employee onsite during that time in an effort to draw down water levels but proved to be insufficient to dewater the culvert system. The observations and findings from the site visit are listed below:

- Sediment level in the junction vault north of Big Beaver Road was measured to be approximately 8.3 feet deep (1-foot deep inside the 12-foot culvert). The water level was approximately 17 feet deep (about 2-foot of below crown of 12 feet culvert).
- The grate at the box culvert inlet west of Rochester Road had significant sediment and debris build up. A recommendation to increase the inlet maintenance will be included with the Final Report.
- The fencing on top of the culvert at this location was also found to be in need of repair.
- Verified that there was no apparent stormwater inflow from the connecting stormwater pipes at the junction box east of Rochester Road and the manhole next to the culvert at the commercial development driveway on the west side of Rochester Road.
- Debris had built up at the culvert outlets on the south side of Big Beaver Road. One action item will be to survey downstream of the culverts and prepare a streambed cleaning recommendation.
- A recommendation will be included in the final report to construct additional bar grates on the culvert outlet to close off access.
- A PACP inspection of the twin arch culverts beneath Big Beaver Road was conducted. Out of the three culverts within the system, these culverts alone were accessible for evaluation.
- In general, the pump that was used (a 1800 GPM pump according to the manufacturer) was insufficient to dewater the culvert system. A quick calculation from the upstream Sturgis Drain inflow based on the depth of water in the channel showed that the inflow (~5cfs) was similar to the pump capacity (~4cfs).
- Three soil samples were collected onsite. One sample was taken at the inlet side of the culvert underneath Rochester Road. The culvert was accessed by a stormwater manhole which outlets into the culvert through a side chamber. The other two soil samples were gathered at the inlet and outlet sides of the twin culvert system underneath Big Beaver Road. The samples were taken in the eastern culvert which contained higher levels of sediment.
- Weather forecasts predicted rain for the following day (Saturday). By Friday afternoon, through discussion with Doetsch onsite, further attempts at dewatering the system were postponed until a later date. Several options were discussed to dewater the system but were deemed unfeasible during the site visit. Some of the options discussed included using a second pump at an upstream location, using a bulkhead at the culvert inlet at Rochester Road to retain a volume of water in the Sturgis Drain, or using a different type of pump.

Drain Profile

One goal of the site visit was to evaluate sediment levels and develop an accurate drain profile, which would assist in modeling hydraulic conditions in the culverts. The drain profile throughout the culvert system can be mapped through the culverts under Rochester Road and Big Beaver Road with relative certainty, but more information is needed to understand sediment levels for the culvert under the Fire Station No. 1 property.

Action Items

Fishbeck has performed or is currently performing the following action items for the site location.

- A soil report dated May 4, 2021 for the three soil samples was performed by Fibertec Environmental Services and obtained from G2. Based on the findings, the soil did not appear to show hazardous waste characteristics (ie, ignitability, corrosivity, reactivity, etc.). The next step will be to verify with the landfill at the time of disposal that they will allow for the media to be placed at their facility. Currently, Doetsch plans to use Eagle Valley, a Waste Management landfill. At that time, the proper disposal methods will be determined.
- A survey crew is scheduled to take streambed shots of the Sturgis Drain downstream of the culvert outlet. The survey will be used to develop a natural streambed slope and prepare a recommendation for streambed cleaning to ensure positive drainage from the culvert.
- Doetsch has been requested to assess sediment levels and, if possible, the overall condition of the 12-foot culvert underneath the Fire Station No. 1 property. Currently, Doetsch is planning a sonar unit to be sent down that section of culvert. Further discussion with Doetsch may be necessary to determine the best method approach (diver, sonar unit, etc.).

Fishbeck has prepared the following action items for the site location.

- Obtain the PACP report and sediment profile for the twin arch culverts underneath Big Beaver Road from Doetsch.
- Once sediment levels are determined, calculate the disposal cost for material. Fishbeck will assist in determining method of diverting base flow.
- Fishbeck to perform preliminary hydraulic analysis of the culvert system. The modeled culvert system will include several scenarios and account for:
 - A hydraulic analysis of initial system.
 - The existing stormwater system flowing into the culvert system.
 - The existing sediment levels and effects on hydraulics.
- Final project recommendations – Hydraulic improvements to the system (three options):
 - Leave as is (do nothing) – check capacity.
 - Clean out (Maintenance).
 - Rehabilitation/Reconstruction options (to be developed from model).

If you have any questions or require additional information, please contact Stephen Clayton at 248.324.2144 or sclayton@fishbeck.com.

By email

Attachments: Soil Report

Site Inspection Log

Photolog

Copy: David Potter, PE – Fishbeck



Tuesday, May 04, 2021

Fibertec Project Number: A01454
Project Identification: 190099 /190099
Submittal Date: 04/26/2021

Mr. Patrick Bell
G2 Consulting Group, LLC
1866 Woodslee
Troy, MI 48083

Dear Mr. Bell,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

A handwritten signature in black ink that reads "Sue Ricketts". The signature is fluid and cursive.

By Sue Ricketts at 11:29 AM, May 04, 2021

For Daryl P. Strandbergh
Laboratory Director

Enclosures

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F: (810) 220-3311
F: (231) 775-8584

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID:	A01454-001	Matrix: Soil/Solid			
Method: ASTM D2216-10						Description:	G2-1WC				
						Preparation		Analysis			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.	
‡ 1. Percent Moisture (Water Content)	47		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET	

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-001	Matrix: Soil/Solid			
Method: EPA 1030						Description: G2-1WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability	negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID: A01454-001	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-1WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID: A01454-001	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-1WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM

Polychlorinated Biphenyls (PCBs)					Aliquot ID:	A01454-001	Matrix: Soil/Solid			
Method: EPA 3546/EPA 8082A					Description: G2-1WC					
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 3 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	7.06	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:42	WD21D28A	AVC
‡ 2. Temperature	21.1		°C	0.0	1.0	NA	NA	04/28/21 12:42	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA H2S Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA HCN Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 4 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-001A

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-001A

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-001B

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-001B

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0018	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 5 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles						Aliquot ID:	A01454-001C	Matrix: TCLP Extract		
Method: EPA 5030C/EPA 8260D						Description:	G2-1WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U		mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-001B	Matrix: TCLP Extract		
Method: EPA 3510C/EPA 8270E						Description:	G2-1WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

Order: A01454
Page: 6 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID:	A01454-002	Matrix: Soil/Solid		
Method: ASTM D2216-10						Description:	G2-2WC			
						Preparation		Analysis		
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	42		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-002	Matrix: Soil/Solid			
Method: EPA 1030						Description: G2-2WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability	negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID:	A01454-002		Matrix: Soil/Solid	
Method: EPA 1311						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID:	A01454-002		Matrix: Soil/Solid		
Method: EPA 1311						Description:	G2-2WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis			
						P. Date	P. Batch	A. Date	A. Batch	Init.	
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM	

Polychlorinated Biphenyls (PCBs)					Aliquot ID: A01454-002	Matrix: Soil/Solid				
Method: EPA 3546/EPA 8082A					Description: G2-2WC					
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	8.53	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:45	WD21D28A	AVC
‡ 2. Temperature	20.7		°C	0.0	1.0	NA	NA	04/28/21 12:45	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA H2S Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA HCN Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-002A

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-002A

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-002B

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-002B

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0014	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles						Aliquot ID:	A01454-002C	Matrix: TCLP Extract		
Method: EPA 5030C/EPA 8260D						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U		mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-002B	Matrix: TCLP Extract		
Method: EPA 3510C/EPA 8270E						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP

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Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID: A01454-003	Matrix: Soil/Solid				
Method: ASTM D2216-10						Description: G2-3WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Percent Moisture (Water Content)		38		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-003	Matrix: Soil/Solid				
Method: EPA 1030						Description: G2-3WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability		negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID: A01454-003	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation	Analysis			Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID: A01454-003	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation	Analysis			
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM

Polychlorinated Biphenyls (PCBs)					Aliquot ID: A01454-003		Matrix: Soil/Solid			
Method: EPA 3546/EPA 8082A					Description: G2-3WC					
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

Order: A01454
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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	7.99	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:48	WD21D28A	AVC
‡ 2. Temperature	20.7		°C	0.0	1.0	NA	NA	04/28/21 12:48	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA H2S Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA HCN Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-003A

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-003A

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-003B

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-003B

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

Order: A01454
Page: 13 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles					Aliquot ID:	A01454-003C	Matrix: TCLP Extract			
Method: EPA 5030C/EPA 8260D					Description:	G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U	F-	mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-003B	Matrix: TCLP Extract			
Method: EPA 3510C/EPA 8270E						Description:	G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis			
						P. Date	P. Batch	A. Date	A. Batch	Init.	
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	

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Definitions/ Qualifiers:

- A:** Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

- *** : Duplicate analysis not within control limits.
F- : Recovery from the spiked aliquot exceeds the lower control limit (matrix spike or matrix spike duplicate).
F+ : Recovery from the spiked aliquot exceeds the upper control limit (matrix spike or matrix spike duplicate).
H : Hold time exceeded.
L- : Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
Y1 : Sample was diluted due to a sample matrix issue.

Analysis Locations:

All analyses performed in Holt.



Accreditation Number(s):

T104704518-19-8 (TX)

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DAILY OBSERVATION REPORT

PROJECT TITLE **Surgis Drain**
LOCATION **Rochester Rd/Big Beaver Rd**
WEATHER part cloudy HIGH 48 LOW 27
CONTRACT NO.
CONTRACTOR Doetsch

DATE 22-Apr-21
PROJECT NO. **200855**
FOREMAN
INSPECTOR Stephen Clayton (Fishbeck)

GENERAL CONTRACTOR

	Crew			
	Regular		Regular	
	No.	Hrs	No.	Hrs
Manpower				
Foreman	1			
Laborer	4			
Equipment				
Towable Generator	1			
Engine Trailer & Crane	1			
Utility Truck	1			
Pickup Truck	2			

REMARKS

7:50 - Arrived on Site
8:50 - Doetsch arrived on site
9:30 - tripod set up over vault
9:50 - foreman's first descent into manhole. Trying to figure out way to set up pump (~1800 gpm pump)
10:20 - pump taken off truck, crew setting up pump and laying out discharge pipe connections
10:45 - still setting up pump and dewatering
11:25 - water is partially flowing back into manhole, they are planning to add more pipe and keep pump running and dig out outlet
1:20 - discussion w Geoff Wilson on site
1:40 - Geoff left, still pumping water. Several discussions with Doetsch on best method going forward
4:30 - Left Site, one crewman staying on site to watch pump. Pump left running overnight.

DAILY OBSERVATION REPORT

PROJECT TITLE **Surgis Drain**
LOCATION **Rochester Rd/Big Beaver Rd**
WEATHER part cloudy HIGH 62 LOW 34
CONTRACT NO.
CONTRACTOR Doetsch

DATE 23-Apr-21
PROJECT NO. **200855**
FOREMAN

INSPECTOR Stephen Clayton (Fishbeck)

GENERAL CONTRACTOR

	Crew			
	Regular		Regular	
	No.	Hrs	No.	Hrs
Manpower				
Foreman	1			
Laborer	4			
Equipment				
Towable Generator	1			
Engine Trailer & Crane	1			
Utility Truck	1			
Pickup Truck	2			

REMARKS
8am arrived on site
Same equipment from the day before
Pump is not sufficient to dewater. Doetsch looking at other options.
Looking to set up near inlet .
9:50 set up tripod over storm manhole near inlet, looking to pump from there.
12:30 - getting soil samples
1:40 - finished getting soil samples, performing Pacp and equipment take down.
3:15 - Left site



Initial Setup and Vault Entry at Big Beaver Road



Preparing to lower 6-inch pump into vault



Lowering 6-inch Discharge Pipe Segments into Vault



Sturgis Drain Inlet, Looking Upstream



Sturgis Drain Inlet at west side of Rochester Road



Sturgis Drain Inlet—Bulkheaded Left Side, Open Culvert on Right Side



Stormwater Manhole Entry on West Rochester—Access Shaft into Rochester Road Culvert



Sturgis Drain Outlet South of Big Beaver Road—Looking Downstream



Outlet on South side of Big Beaver Road—Dual 12-x-8 feet Culverts



East Outlet Culvert with Layer of Debris on Bottom



West Outlet Culvert Under Big Beaver Road—Less Debris



Outlet Culverts on South Side of Big Beaver Road

Appendix 2

Soil Analytical Laboratory Report



Tuesday, May 04, 2021

Fibertec Project Number: A01454
Project Identification: 190099 /190099
Submittal Date: 04/26/2021

Mr. Patrick Bell
G2 Consulting Group, LLC
1866 Woodslee
Troy, MI 48083

Dear Mr. Bell,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

A handwritten signature in dark ink, appearing to read "Sue Ricketts".

By Sue Ricketts at 11:29 AM, May 04, 2021

For Daryl P. Strandbergh
Laboratory Director

Enclosures

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F: (231) 775-8584

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID: A01454-001	Matrix: Soil/Solid				
Method: ASTM D2216-10						Description: G2-1WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Percent Moisture (Water Content)		47		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-001	Matrix: Soil/Solid				
Method: EPA 1030						Description: G2-1WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability		negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID: A01454-001	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-1WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation	Analysis			Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID: A01454-001	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-1WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation	Analysis			
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM

Polychlorinated Biphenyls (PCBs)					Aliquot ID: A01454-001		Matrix: Soil/Solid			
Method: EPA 3546/EPA 8082A					Description: G2-1WC					
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	130	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 3 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	7.06	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:42	WD21D28A	AVC
‡ 2. Temperature	21.1		°C	0.0	1.0	NA	NA	04/28/21 12:42	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA H2S Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-001 Matrix: Soil/Solid
Method: EPA HCN Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 4 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-001A

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-001A

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-001B

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-001B

Matrix: TCLP Extract

Description: G2-1WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0018	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-001

Order: A01454
Page: 5 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-1WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	12:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles						Aliquot ID:	A01454-001C	Matrix: TCLP Extract		
Method: EPA 5030C/EPA 8260D						Description:	G2-1WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U		mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-001B	Matrix: TCLP Extract		
Method: EPA 3510C/EPA 8270E						Description:	G2-1WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

Order: A01454
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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID:	A01454-002	Matrix: Soil/Solid		
Method: ASTM D2216-10						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	42		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-002	Matrix: Soil/Solid			
Method: EPA 1030						Description: G2-2WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability	negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID:	A01454-002		Matrix: Soil/Solid	
Method: EPA 1311						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID: A01454-002	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-2WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM

Polychlorinated Biphenyls (PCBs)					Aliquot ID:	A01454-002	Matrix: Soil/Solid			
Method: EPA 3546/EPA 8082A					Description: G2-2WC					
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	120	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

Order: A01454
Page: 7 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	8.53	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:45	WD21D28A	AVC
‡ 2. Temperature	20.7		°C	0.0	1.0	NA	NA	04/28/21 12:45	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA H2S Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-002 Matrix: Soil/Solid
Method: EPA HCN Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

Order: A01454
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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-002A

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-002A

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-002B

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U	F+	mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-002B

Matrix: TCLP Extract

Description: G2-2WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0014	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-002

Order: A01454
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Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-2WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:10
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles						Aliquot ID:	A01454-002C	Matrix: TCLP Extract		
Method: EPA 5030C/EPA 8260D						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U		mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-002B	Matrix: TCLP Extract		
Method: EPA 3510C/EPA 8270E						Description:	G2-2WC			
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP

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Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Water (Moisture) Content Dried at 105 ± 5°C						Aliquot ID: A01454-003		Matrix: Soil/Solid			
Method: ASTM D2216-10						Description: G2-3WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Percent Moisture (Water Content)		38		%	1	1.0	04/27/21	MC210427	04/28/21	MC210427	LET

Ignitability of Solids (Waste Characterization)						Aliquot ID: A01454-003	Matrix: Soil/Solid				
Method: EPA 1030						Description: G2-3WC					
						Preparation		Analysis			
Parameter(s)		Result	Q	Units	Reporting Limit	Dilution	P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Ignitability		negative		mm/s	0.01	1.0	NA	NA	04/28/21	WX21D28A	AVC

Toxicity Characteristic Leaching Procedure (TCLP)						Aliquot ID: A01454-003	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. TCLP Date	4/28/2021		NA	NA	1.0	04/28/21	NA	04/28/21	NA	AVC

Toxicity Characteristic Leaching Procedure (TCLP), Zero Headspace						Aliquot ID: A01454-003	Matrix: Soil/Solid			
Method: EPA 1311						Description: G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. TCLP Date	4/29/2021		NA	NA	1.0	NA	NA	04/29/21	NA	CM

Polychlorinated Biphenyls (PCBs)						Aliquot ID: A01454-003	Matrix: Soil/Solid			
Method: EPA 3546/EPA 8082A						Description: G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Aroclor-1016	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
2. Aroclor-1221	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
3. Aroclor-1232	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
4. Aroclor-1242	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
5. Aroclor-1248	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
6. Aroclor-1254	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
7. Aroclor-1260	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 8. Aroclor-1262	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP
‡ 9. Aroclor-1268	U		µg/kg	110	5.0	04/29/21	PS21D29A	04/30/21	SF21D30A	GJP

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F: (231) 775-8584



Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

Order: A01454
Page: 11 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

Corrosivity (Waste Characterization); Soil/waste pH measured in water at the reported temperature Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA 9045D Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Corrosivity (pH)	7.99	H	pH Units	-1.00	1.0	NA	NA	04/28/21 12:48	WD21D28A	AVC
‡ 2. Temperature	20.7		°C	0.0	1.0	NA	NA	04/28/21 12:48	WD21D28A	AVC

Reactive Sulfide (Waste Characterization) Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA H2S Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Sulfide, Reactive	U	Y1	mg/kg	33	5.0	04/28/21	WG21D28A	04/30/21	W321D30A	AVC

Reactive Cyanide (Waste Characterization) Aliquot ID: A01454-003 Matrix: Soil/Solid
Method: EPA HCN Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Cyanide, Reactive	U		mg/kg	8.6	1.0	04/28/21	WG21D28A	04/28/21	WQ21D28B	RJM

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

Order: A01454
Page: 12 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP RCRA-8 Metals by ICP-MS

Method: EPA 3005A (Total Recoverable)/EPA 6020A

Aliquot ID: A01454-003A

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Arsenic	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
2. Barium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
3. Cadmium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
4. Chromium	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
5. Lead	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
6. Selenium	U		mg/L	0.20	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA
7. Silver	U		mg/L	1.0	20	04/29/21	PT21D29D	04/29/21	T421D29A	CJA

TCLP Mercury

Method: EPA 7470A

Aliquot ID: A01454-003A

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. Mercury	U		mg/L	0.050	1.0	04/29/21	PM21D29B	04/29/21	M721D29A	JLH

TCLP Pesticides

Method: EPA 3510C/EPA 8081B

Aliquot ID: A01454-003B

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
1. gamma-BHC	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
2. Chlordane	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA
3. Endrin	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
4. Heptachlor	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
5. Heptachlor Epoxide	U		mg/L	0.00010	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
6. Methoxychlor	U		mg/L	0.00050	1.0	04/30/21	PS21D30D	04/30/21	SO21D30A	BDA
7. Toxaphene	U		mg/L	0.0010	1.0	04/30/21	PS21D30D	05/03/21	SO21E03A	BDA

TCLP Herbicides

Method: EPA 8151A

Aliquot ID: A01454-003B

Matrix: TCLP Extract

Description: G2-3WC

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		Init.
						P. Date	P. Batch	A. Date	A. Batch	
‡ 1. 2,4-D	U		mg/L	0.010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA
‡ 2. 2,4,5-TP	U		mg/L	0.0010	5.0	04/29/21	PS21D29E	05/03/21	SC21E03A	BDA

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Analytical Laboratory Report
Laboratory Project Number: A01454
Laboratory Sample Number: A01454-003

Order: A01454
Page: 13 of 14
Date: 05/04/21

Client Identification:	G2 Consulting Group, LLC	Sample Description:	G2-3WC	Chain of Custody:	168814
Client Project Name:	190099	Sample No:		Collect Date:	04/23/21
Client Project No:	190099	Sample Matrix:	Soil/Solid	Collect Time:	13:40
Sample Comments:	Soil results have been calculated and reported on a dry weight basis unless otherwise noted.				
Definitions:	Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.				

TCLP Volatiles					Aliquot ID:	A01454-003C	Matrix: TCLP Extract			
Method: EPA 5030C/EPA 8260D					Description:	G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
1. Benzene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
2. 2-Butanone	U	F-	mg/L	40	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
3. Carbon Tetrachloride	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
4. Chlorobenzene	U		mg/L	20	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
5. Chloroform	U		mg/L	1.2	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
6. 1,4-Dichlorobenzene	U		mg/L	1.5	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
7. 1,2-Dichloroethane	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
8. 1,1-Dichloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
9. Tetrachloroethene	U		mg/L	0.14	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
10. Trichloroethene	U		mg/L	0.10	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM
11. Vinyl Chloride	U		mg/L	0.040	1.0	04/30/21	VB21D30A	04/30/21	VB21D30A	JLM

TCLP Semivolatiles						Aliquot ID:	A01454-003B	Matrix: TCLP Extract			
Method: EPA 3510C/EPA 8270E						Description:	G2-3WC				
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis			
						P. Date	P. Batch	A. Date	A. Batch	Init.	
1. 2,4-Dinitrotoluene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
2. Hexachlorobenzene	U		mg/L	0.025	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
3. Hexachlorobutadiene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
4. Hexachloroethane	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
5. 2-Methylphenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
‡ 6. 3&4-Methylphenol	U	*	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
7. Nitrobenzene	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
8. Pentachlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
9. Pyridine	U	L-	mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
10. 2,4,5-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	
11. 2,4,6-Trichlorophenol	U		mg/L	0.10	1.0	04/29/21	PS21D29D	04/30/21	S521D30A	GJP	

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Definitions/ Qualifiers:

- A:** Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

- *** : Duplicate analysis not within control limits.
F- : Recovery from the spiked aliquot exceeds the lower control limit (matrix spike or matrix spike duplicate).
F+ : Recovery from the spiked aliquot exceeds the upper control limit (matrix spike or matrix spike duplicate).
H : Hold time exceeded.
L- : Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
Y1 : Sample was diluted due to a sample matrix issue.

Analysis Locations:

All analyses performed in Holt.



Accreditation Number(s):

T104704518-19-8 (TX)

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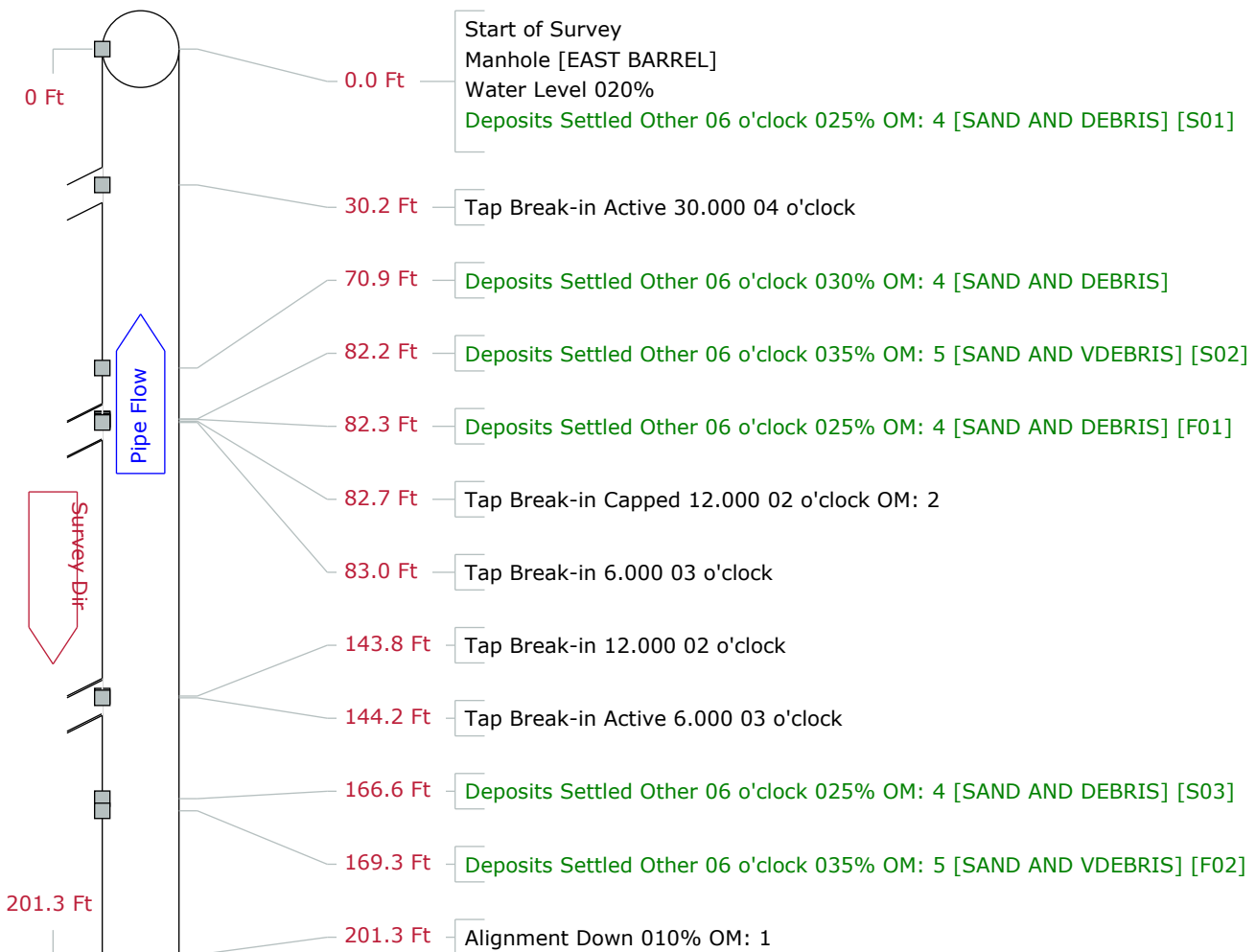
Client Name: <u>G2 Consulting Group</u>				<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">MATRIX (SEE RIGHT CORNER FOR CODE)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"># OF CONTAINERS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PCB TCDF PCB PCBs</div> </div>												PARAMETERS				Matrix Code				Deliverables																					
Contact Person: <u>Dan Bell</u>																HOLD SAMPLE				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>S</td><td>Soil</td><td>GW</td><td>Ground Water</td></tr> <tr> <td>A</td><td>Air</td><td>SW</td><td>Surface Water</td></tr> <tr> <td>O</td><td>Oil</td><td>WW</td><td>Waste Water</td></tr> <tr> <td>P</td><td>Wipe</td><td>X</td><td>Other: Specify</td></tr> </table>				S	Soil	GW	Ground Water	A	Air	SW	Surface Water	O	Oil	WW	Waste Water	P	Wipe	X	Other: Specify	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Level 2</td></tr> <tr><td>Level 3</td></tr> <tr><td>Level 4</td></tr> <tr><td>EDD</td></tr> </table>		Level 2	Level 3	Level 4	EDD
S	Soil	GW	Ground Water																																										
A	Air	SW	Surface Water																																										
O	Oil	WW	Waste Water																																										
P	Wipe	X	Other: Specify																																										
Level 2																																													
Level 3																																													
Level 4																																													
EDD																																													
Project Name/ Number: <u>190099</u>																																													
Email distribution list: <u>pbell@g2consultinggroup.com</u>																																													
Quote# <u>190099 REV</u>																																													
Purchase Order#																																													
Date	Time	Sample #	Client Sample Descriptor	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">MATRIX (SEE RIGHT CORNER FOR CODE)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"># OF CONTAINERS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PCB TCDF PCB PCBs</div> </div>																		Remarks:																							
<u>4/23/21</u>	<u>12:40p</u>		<u>G2-1WC</u>																			<u>Sediment</u>																							
<u>11</u>	<u>1:10p</u>		<u>G2-2WC</u>																			<u>Sediment</u>																							
<u>11</u>	<u>1:40p</u>		<u>G2-3WC</u>																			<u>Sediment</u>																							
				Received By Lab																																									
				APR 26 2021																																									
				Initials: <u>CI</u>																																									
Comments:																																													
Sampled/Relinquished By: <u>Dan Bell</u>				Date/Time: <u>4/23/21</u>				Received By: <u>[Signature]</u>																																					
Relinquished By: <u>[Signature]</u>				Date/Time: <u>4/26/21 3:50</u>				Received By: <u>[Signature]</u>																																					
Relinquished By: <u>[Signature]</u>				Date/Time: <u>4/26/21 3:50</u>				Received By Laboratory:																																					
Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY _____ 1 bus. day _____ 2 bus. days _____ 3 bus. days _____ 4 bus. days <input checked="" type="checkbox"/> 5-7 bus. days (standard) Other (specify time/date requirement): _____												LAB USE ONLY Fibertec project number: <u>A01454</u> Temperature upon receipt at Lab: <u>2.50C</u> <div style="border: 2px solid red; padding: 5px; display: inline-block; color: red;">Received On Ice</div>																																	
Please see back for terms and conditions																																													

Appendix 3

Twin Arch Culvert PACP Reports

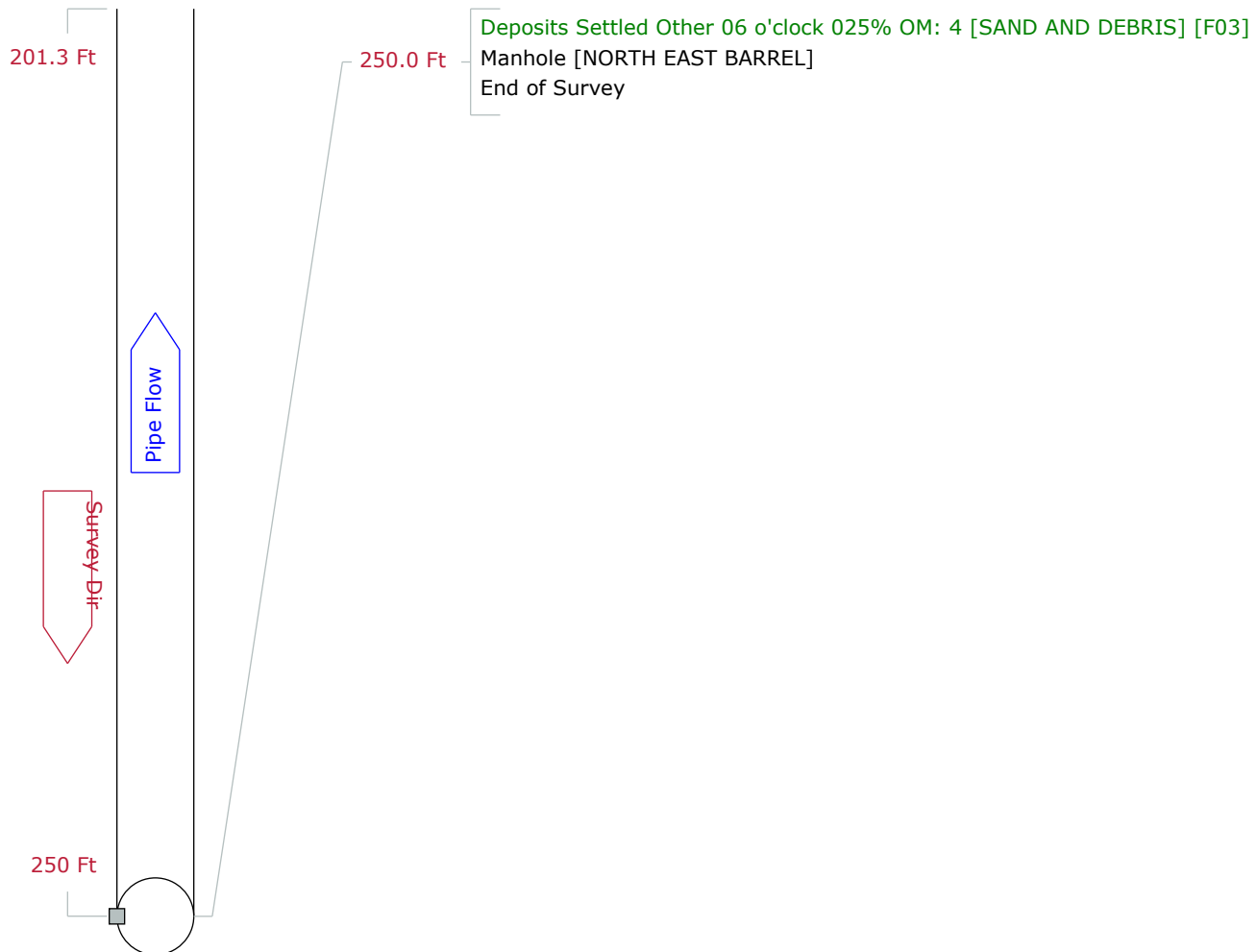
Pipe Graphic Report of PSR NORTH EAST BARREL X for WRC OAKLAND CO

Setup	2	Surveyor	TONY G	Certificate #	U04180703001246	System Owner	OAKLAND CO
Drainage	Survey Customer WRC OAKLAND CO						
P/O #		Date	2021/10/04	Time	10:17	Street	BIG BEAVER
City	TROY	Further location details					
Up	NORTH EAST BARREL	Rim to invert		Grade to invert		Rim to grade	Ft
Down	EAST BARREL	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Media No	
Shape	Barrel	Height	100	Width	130 ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	250.0 Ft	Date Cleaned	
Lining		Year laid		Year rehabilitated		Length Surveyed	250.00 Ft
Purpose		Cat				Weather	
Additional info				Structural	O & M	Constructional	
Location				Miscellaneous	Hydraulic		
Project	BIG BEAVER & ROCHESTER RD			Work Order			
Northing				Elevation			
Coordinate System				GPS Accuracy			



Pipe Graphic Report of PSR NORTH EAST BARREL X for WRC OAKLAND CO

Setup	2	Surveyor	TONY G	Certificate #	U04180703001246	System Owner	OAKLAND CO		
Drainage	Survey Customer WRC OAKLAND CO								
P/O #	Date 2021/10/04		Time 10:17		Street BIG BEAVER				
City	TROY	Further location details							
Up	NORTH EAST BARREL		Rim to invert		Grade to invert		Rim to grade	Ft	
Down	EAST BARREL		Rim to invert		Grade to invert		Rim to grade	Ft	
Use	Stormwater		Direction Upstream		Flow control		Media No		
Shape	Barrel		Height 100	Width 130	ins	Preclean N	Date Cleaned		
Material	Corrugated Metal Pipe		Joint length		Ft	Total length 250.0	Ft	Length Surveyed 250.00	Ft
Lining			Year laid		Year rehabilitated		Weather		
Purpose					Cat				
Additional info						Structural	O & M	Constructional	
Location						Miscellaneous	Hydraulic		
Project	BIG BEAVER & ROCHESTER RD					Work Order			
Northing				Easting		Elevation			
Coordinate System						GPS Accuracy			



Tabular Report of PSR NORTH EAST BARREL X for WRC OAKLAND CO

Setup 2	Surveyor TONY G	Certificate # U04180703001246	System Owner OAKLAND CO
Drainage	Survey Customer WRC OAKLAND CO		
P/O #	Date 2021/10/04	Time 10:17	Street BIG BEAVER
City TROY	Further location details		
Up NORTH EAST BARREL	Rim to invert	Grade to invert	Rim to grade Ft
Down EAST BARREL	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Up	Flow control	Media No
Shape Barrel	Height 100	Width 130 ins	Preclean N
Material Corrugated Metal Pipe	Joint length Ft	Total length 250.0 Ft	Length Surveyed 250.0 Ft
Lining	Year laid	Year rehabilitated	Weather
Purpose	Cat	Pressure	
Additional info		Structural	O & M
Location		Miscellaneous	
Project BIG BEAVER & ROCHESTER RD		Work Order	
Northing		Easting	
Coordinate System		GPS Accuracy	

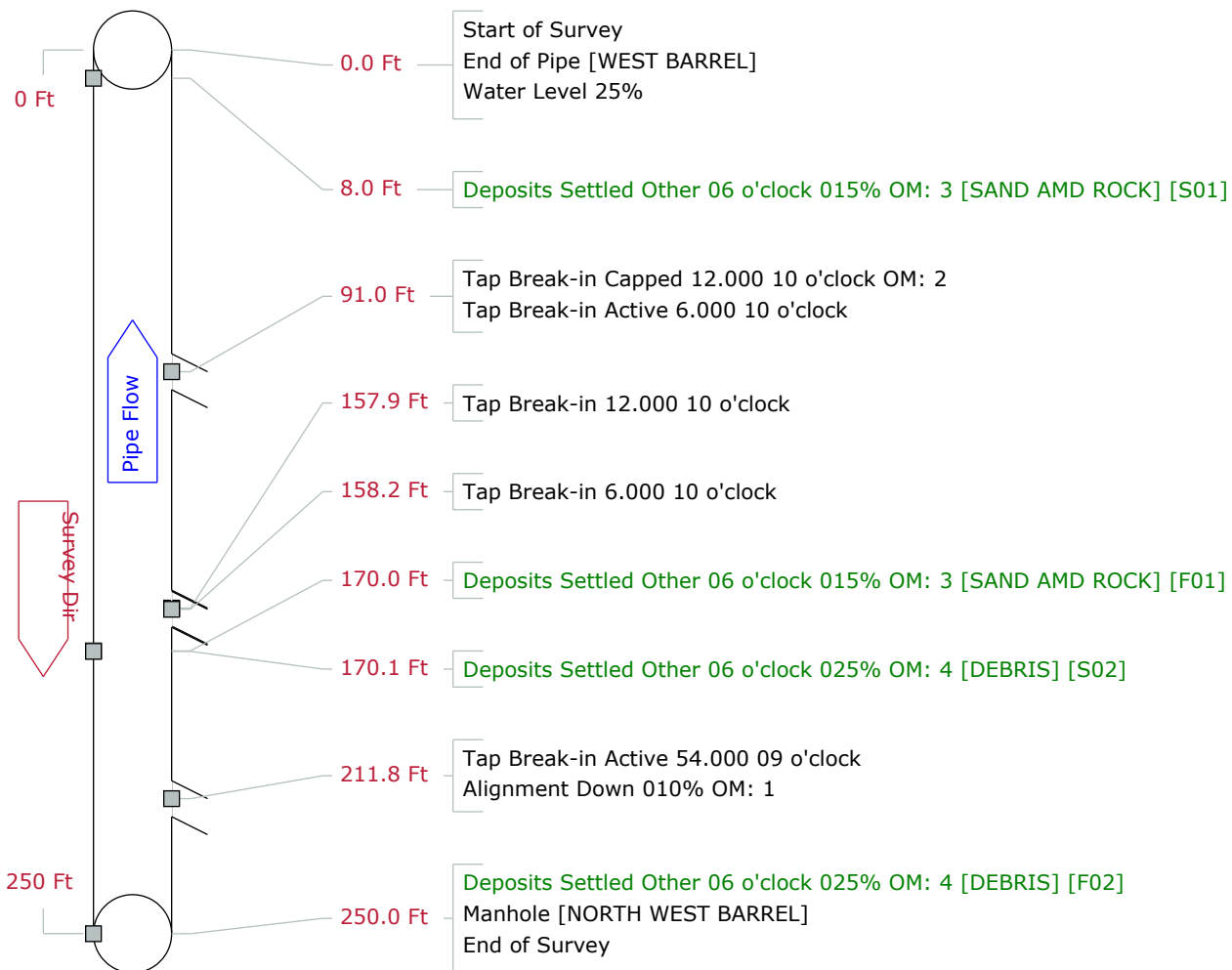
Count	Video	CD	Code	In1	In2	%	JntFr	To	ImRef	Remarks
0.0			ST Start of Survey							
0.0			AMH Manhole							EAST BARREL
0.0			MWL Water Level			20				
0.0		S01	DSZ Deposits Settled Other			25	06			SAND AND DEBRIS
30.2			TBA Tap Break-in Active	30.000			04			
70.9			DSZ Deposits Settled Other			30	06			SAND AND DEBRIS
82.2		S02	DSZ Deposits Settled Other			35	06			SAND AND VDEBRIS
82.3		F01	DSZ Deposits Settled Other			25	06			SAND AND DEBRIS
82.7			TBC Tap Break-in Capped	12.000			02			
83.0			TB Tap Break-in	6.000			03			
143.8			TB Tap Break-in	12.000			02			
144.2			TBA Tap Break-in Active	6.000			03			
166.6		S03	DSZ Deposits Settled Other			25	06			SAND AND DEBRIS
169.3		F02	DSZ Deposits Settled Other			35	06			SAND AND VDEBRIS
201.3			LD Alignment Down			10				
250.0		F03	DSZ Deposits Settled Other			25	06			SAND AND DEBRIS
250.0			AMH Manhole							NORTH EAST BARREL
250.0			FH End of Survey							

250.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 224	Pipe Ratings Index 4.2	Quick Rating 5B4E
	Overall	Pipe Rating 224	Pipe Ratings Index 4.2	Quick Rating 5B4E

Pipe Graphic Report of PSR NOTH WEST BARREL X for WRC OAKLAND CO

Setup	1	Surveyor	TONY G	Certificate #	U04180703001246	System Owner	OAKLAND CO
Drainage	Survey Customer WRC OAKLAND CO						
P/O #		Date	2021/10/04	Time	9:16	Street	BIG BEAVER
City	TROY	Further location details					
Up	NORTH WEST BARREL	Rim to invert		Grade to invert		Rim to grade	Ft
Down	WEST BARREL	Rim to invert		Grade to invert		Rim to grade	Ft
Use	Stormwater	Direction	Upstream	Flow control		Media No	
Shape	Barrel	Height	100	Width	130 ins	Preclean	N
Material	Corrugated Metal Pipe	Joint length	Ft	Total length	250.0 Ft	Date Cleaned	
Lining		Year laid		Year rehabilitated		Length Surveyed	250.00 Ft
Purpose		Cat				Weather	
Additional info				Structural	O & M	Constructional	
Location				Miscellaneous	Hydraulic		
Project	BIG BEAVER & ROCHESTER RD			Work Order			
Northing				Elevation			
Coordinate System				GPS Accuracy			



Tabular Report of PSR NOTH WEST BARREL X for WRC OAKLAND CO

Setup 1	Surveyor TONY G	Certificate # U04180703001246	System Owner OAKLAND CO
Drainage	Survey Customer WRC OAKLAND CO		
P/O #	Date 2021/10/04	Time 9:16	Street BIG BEAVER
City TROY	Further location details		
Up NORTH WEST BARREL	Rim to invert	Grade to invert	Rim to grade Ft
Down WEST BARREL	Rim to invert	Grade to invert	Rim to grade Ft
Use Stormwater	Direction Up	Flow control	Media No
Shape Barrel	Height 100	Width 130 ins	Preclean N
Material Corrugated Metal Pipe	Joint length Ft	Total length 250.0 Ft	Length Surveyed 250.0 Ft
Lining	Year laid	Year rehabilitated	Weather
Purpose	Cat		Pressure
Additional info		Structural	O & M
Location		Miscellaneous	
Project BIG BEAVER & ROCHESTER RD		Work Order	
Northing		Easting	
Coordinate System		GPS Accuracy	

Count	Video	CD	Code	In1	In2	%	JntFr	To	ImRef	Remarks
0.0			ST	Start of Survey						
0.0			AEP	End of Pipe						WEST BARREL
0.0			MWL	Water Level		25				
8.0		S01	DSZ	Deposits Settled Other		15	06			SAND AMD ROCK
91.0			TBC	Tap Break-in Capped	12.000		10			
91.0			TBA	Tap Break-in Active	6.000		10			
157.9			TB	Tap Break-in	12.000		10			
158.2			TB	Tap Break-in	6.000		10			
170.0		F01	DSZ	Deposits Settled Other		15	06			SAND AMD ROCK
170.1		S02	DSZ	Deposits Settled Other		25	06			DEBRIS
211.8			TBA	Tap Break-in Active	54.000		09			
211.8			LD	Alignment Down		10				
250.0		F02	DSZ	Deposits Settled Other		25	06			DEBRIS
250.0			AMH	Manhole						NORTH WEST BARREL
250.0			FH	End of Survey						

250.0 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 163	Pipe Ratings Index 3.3	Quick Rating 4B3E
	Overall	Pipe Rating 163	Pipe Ratings Index 3.3	Quick Rating 4B3E

Appendix 4

Hydraulic Analysis – Existing and Proposed

Fishbeck

39500 Mackenzie Drive, Suite 100, Novi, MI 48377

Telephone: (248) 324-2090

Project: Sturgis Drain Date: 10/7/2021
 Location: Rochester Road, City of Troy, Oakland County Project #: 200855
 Work: Hydraulic Performance of Culverts with Varying Levels of Sediment

SWMM				HY8			
Sediment Depth	10-YR (480)			Sediment Depth	10-YR (480)		
	Headwater Elevation*				Headwater Elevation*		
	Rochester Rd	Troy Park	Big Beaver		Rochester Rd	Troy Park	Big Beaver
	14'x16.5'	12' Circular	Twin Arches		14'x16.5'	12' Circular	Twin Arches
ft	ft	ft	ft	ft	ft	ft	ft
0	654.27	654.18	653.55	0	654.23	654.09	653.56
1	654.35	654.25	653.55	1	654.46	654.30	653.56
2	654.49	654.38	653.55	2	654.61	654.43	653.56
3	654.71	654.58	653.55	3	654.82	654.64	653.56
4	655.06	654.91	653.55	4	655.23	654.99	653.56
5	655.63	655.47	653.55	5	655.83	655.58	653.56
6	656.66	656.48	653.55	6	656.95	656.66	653.56

*Per FIS 10-YR Upstream of Rochester Rd is 657.2

100-YR (1000)				100-YR (1000)			
Sediment Depth	Headwater Elevation**			Sediment Depth	Headwater Elevation**		
	Rochester Rd	Troy Park	Big Beaver		Rochester Rd	Troy Park	Big Beaver
	14'x16.5'	12' Circular	Twin Arches		14'x16.5'	12' Circular	Twin Arches
ft	ft	ft	ft	ft	ft	ft	ft
0	659.46	659.15	656.37	0	659.17	658.69	656.41
1	659.79	659.44	656.37	1	660.45	659.60	656.41
2	660.40	659.99	656.37	2	660.80	660.17	656.41
3	661.35	660.87	656.37	3	661.53	661.09	656.41
4	662.00	661.49	656.10	4	662.51	662.12	656.41
5	662.00	661.52	655.54	5	662.64	662.34	656.41
6	662.00	661.57	654.89	6	662.71	662.51	656.41

**Per FIS 100-YR Upstream of Rochester Rd is 661.4

Fishbeck

39500 Mackenzie Drive, Suite 100, Novi, MI 48377

Telephone: (248) 324-2090

Project:	Sturgis Drain	Date:	10/7/2021
Location:	Rochester Road, City of Troy, Oakland County	Project #:	200855
Work:	Hydraulic Performance of Proposed 14' x 8' Culvert		

SWMM

10-YR (480)

Headwater Elevation*

Rochester Rd	Troy Park	Big Beaver
14'x16.5'	14'x8'	Twin Arches
ft	ft	ft
655.42	654.91	653.56

*Per FIS 10-YR Upstream of Rochester Rd is 657.2

HY8

10-YR (480)

Headwater Elevation*

Rochester Rd	Troy Park	Big Beaver
14'x16.5'	14'x8'	Twin Arches
ft	ft	ft
655.58	654.76	653.56

100-YR (1000)

Headwater Elevation**

Rochester Rd	Troy Park	Big Beaver
14'x16.5'	14'x8'	Twin Arches
ft	ft	ft
661.09	659.52	656.70

**Per FIS 100-YR Upstream of Rochester Rd is 661

100-YR (1000)

Headwater Elevation**

Rochester Rd	Troy Park	Big Beaver
14'x16.5'	14'x8'	Twin Arches
ft	ft	ft
661.21	658.86	656.41

Appendix 5

Bilco Plate Brochure

Floor Access Doors

BILCO's floor access door safety products help workers do their job safely by protecting them while they are working. Products meet OSHA fall protection standards and make fixed ladder access safer and easier.



Fall Protection Grating System Features

- Provides a permanent means of fall protection under access doors
- Exceeds OSHA fall protection requirements
- Aluminum grating with a safety-yellow powder coat paint finish for added durability
- Equipped with a stainless steel automatic hold-open device that securely locks the panel in the full open position
- Stainless steel hardware for corrosion resistance
- Supplied with a padlock hasp for added security
- Backed by a 25-year manufacturer's warranty

LadderUP® Features

- Adjustable mounting hardware accommodates virtually any ladder rung size or spacing
- Telescoping design is spring balanced for ease of operation
- Automatically locks in the fully raised position to provide the user with a firm and steady hand-hold
- Handy release lever allows the post to be easily lowered to its retracted position
- Available in four levels of corrosion resistance to provide many years of trouble free, dependable service

Log on to www.BILCO.com to find a sales representative near you.



Fall Protection Grating System

Fall Protection Grating System allows workers to safely inspect pumps and monitor underground areas. System permanently mounts under access door covers and are available as either factory-installed or as field-installable kits for all standard-sized Bilco Type J, JD, J-AL and J-DAL models. Grating system features aluminum construction with a safety yellow powder coat paint finish and stainless steel hardware.



BILCO LadderUp® Safety Post

LadderUP® Safety Posts provide easier, safer ladder access through roof hatches, floor access doors and manholes. This telescoping post permanently mounts to the top two rungs of any fixed ladder, providing a positive hand-hold and enabling the user to enter or exit an opening in an upright and balanced position.

MODEL#	MATERIAL/FINISH	WEIGHT	
		lbs.	kg.
LU-1	Steel, yellow powder coat	24	11
LU-2	Steel, hot dip galvanized	24	11
LU-3	Type 304 Stainless Steel, sand blast finish	24	11
LU-4	Aluminum, mill finish	14	7

Appendix 6

Doetsch Quote for Cleanout



21221 Mullin Ave. Warren MI 48089

October 24, 2021

Stephen Clayton
Fishbeck, Thompson, Carr & Huber
39500 MacKenzie Drive, Suite 100
Novi, MI 48377

RE: Sturgis Storm Drain Cleaning

Mr. Clayton,

Doetsch Environmental Services will provide the necessary cleaning equipment to clean the Sturgis Drain as directed

Scope:

- Clean approx. 920 tons of debris from 12' diameter concrete pipe under the park
- Clean approx. 400 tons of debris from the twin arch culvert under Big Beaver.

Assumptions:

- Equipment set up will require WB right lane closure, permanent. Utilize WRC blanket permit.
- All debris to be hauled to Waste Management landfill
- Utilize space at culvert opening south of Big Beaver for laydown area
- Restoration / improvements not included in budget pricing
- Water meter and permit provided by WRC
- Based on 6 day work weeks

Mobilization and set up: \$32,400.00 lump sum

Price per ton of debris removal: \$890.00 per ton

Estimated duration: 130 days

Please contact me with any questions or concerns.

Thank you for the opportunity to be of service,

A handwritten signature in blue ink, appearing to read "Joseph G. Schotthoefer IV".

Joseph G Schotthoefer IV

Appendix 7

Rochester Road Flooding Event Photolog
(February 17, 2022)



Removed debris and ice at inlet (looking west)



Debris and ice removal at inlet (looking west)



Equipment for removing debris and ice at inlet (looking southwest)



Flooding of southbound Rochester Road (looking south)



Ice and debris at inlet (looking southwest)



Gateway Park Pond (looking north)



Shopping Center Parking Lot flooding (looking west)



Rochester Road flooding (looking south)



Upstream at inlet (looking west)



Rochester Road flooding (looking south)



Rochester Road flooding (looking east)



Rochester Road flooding (looking southeast)

Appendix 8

Engineers Opinion of Probable Conceptual Costs

Fishbeck Conceptual Cost Estimate

39500 Mackenzie Drive, Suite 100
Novi, MI 48377
248.324.2090

Project: Sturgis Drain Improvements
Location: Troy, MI
Work: Chamber Access Modifications & Maintenance Slide Gates

Date: 9/9/2022
Project No.: 200855
Current ENR Index: _____
Reviewer: _____

Item No.	Item Description	Unit	Est. Quantity	Unit Price	Total Cost
----------	------------------	------	---------------	------------	------------

Misc Items					
	Mobilization (5%)	LSUM	1	\$15,000.00	\$15,000.00
	Bonds/Insurance (3%)	LSUM	1	\$9,000.00	\$9,000.00
	City of Troy MOT Permit Fee (No Fee)	LSUM	1	\$0.00	\$0.00
	Temporary Access Easement (Old Church Property)	LSUM	1	\$10,000.00	\$10,000.00
	Preconstruction Video	LSUM	1	\$2,500.00	\$2,500.00
Misc Items (Subtotal) =					\$36,500.00
Contingency (30%) =					\$10,950.00
Misc Items Conceptual Cost Estimate =					\$47,450.00

Chamber Access Modificaitons					
	Pavt, Rem	Syd	375	\$14.00	\$5,250.00
	Sidewalk, Rem	Syd	120	\$16.00	\$1,920.00
	Chamber Top, Structural Concrete (includes reinforcing steel)	Cyd	13	\$2,500.00	\$32,500.00
	Excavation (1 crew day at \$3K)	LSUM	1	\$3,000.00	\$3,000.00
	Chamber Sawcutting (Cougar)	LSUM	1	\$10,000.00	\$10,000.00
	Hot Dipped Steel Beams (\$2000 long and \$500 short + 20%)	LSUM	1	\$6,000.00	\$6,000.00
	Cast in Place Forms/False Decking	LSUM	1	\$10,000.00	\$10,000.00
	Miscellaneous Metal (Angle Iron, Etc)	LSUM	1	\$2,000.00	\$2,000.00
	Liftable Slab, Structural Concrete (includes reinforcing steel)	Cyd	3	\$2,500.00	\$7,500.00
	Liftable Slab, Misc (Rubber Plugs, Backer Rod, Elastomeric Pad, etc)	LSUM	1	\$1,000.00	\$1,000.00
	Liftable Slab, Frame and Cover	Ea	1	\$1,000.00	\$1,000.00
	Conc Pavt, Misc, Nonreinf, 10 inch	Syd	345	\$75.00	\$25,875.00
	Sidewalk, Conc, 6 inch	Sft	1080	\$8.00	\$8,640.00
	Aggregate Base, Conditioning	Syd	345	\$10.00	\$3,450.00
	Restoration	Syd	100	\$20.00	\$2,000.00
	Traffic Control (Single Lane Closure, TCB, etc)	LSUM	1	\$7,500.00	\$7,500.00
Chamber Access Modifications (Subtotal) =					\$127,635.00
Contingency (30%) =					\$38,300.00
Chamber Access Modifications Conceptual Cost Estimate =					\$165,935.00

Fishbeck Conceptual Cost Estimate

39500 Mackenzie Drive, Suite 100
Novi, MI 48377
248.324.2090

Project: Sturgis Drain Improvements
Location: Troy, MI
Work: Chamber Access Modifications & Maintenance Slide Gates

Date: 9/9/2022
Project No.: 200855
Current ENR Index: _____
Reviewer: _____

Item No.	Item Description	Unit	Est. Quantity	Unit Price	Total Cost
Maintenance Slide Gates					
	Walls and Beams, Structural Concrete (includes reinforcing steel)	Cyd	8	\$2,500.00	\$20,000.00
	Slide Gate, 9-foot by 7-foot	Ea	2	\$55,000.00	\$110,000.00
	Brush Guard Replacement (Galvanized)	LSUM	1	\$10,000.00	\$10,000.00
	Miscellaneous Excavation (1 day at \$5,000)	LSUM	1	\$5,000.00	\$5,000.00
	Bypass Free Drain Re-Routing	LSUM	1	\$30,000.00	\$30,000.00
	Metal Fencing (includes gates)	Ft	50	\$200.00	\$10,000.00
	Miscellaneous Fill and Concrete Platform	LSUM	1	\$10,000.00	\$10,000.00
	Drain Cleanout	Sta	2	\$5,000.00	\$10,000.00
	Restoration	Syd	100	\$20.00	\$2,000.00
Chamber Access Modifications (Subtotal) =					\$207,000.00
Contingency (30%) =					\$62,100.00
Maintenance Slide Gates Conceptual Cost Estimate =					\$269,100.00

Totals	
Misc Items:	\$47,450.00
Chamber Access Modifications:	\$165,935.00
Maintenance Slide Gates:	\$269,100.00
Conceptual Total Cost (includes 30% contingency) =	\$482,485.00

15' Diameter Pipe Hatch Access					
	Sawcutting	LSUM	1	\$5,000.00	\$5,000.00
	Bolted Access Plate	LSUM	1	\$15,000.00	\$15,000.00
	Miscellaneous Metals	LSUM	1	\$2,000.00	\$2,000.00
	Core and Plug Chamber Top (For Access Plate Lifting Cable)	LSUM	1	\$2,000.00	\$2,000.00
	Bypass Pumping	LSUM	1	\$50,000.00	\$50,000.00
15' Diameter Pipe Access (Subtotal) =					\$74,000.00
Contingency (30%) =					\$22,200.00
15' Diameter Pipe Access Conceptual Cost Estimate =					\$96,200.00

9. Wilmont Drain

AGENDA

DRAINAGE BOARD FOR THE WILMONT DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present Construction Estimate No. 2 for Trojan Development Company, Inc. for Maintenance of the White Horse Lake Weir Replacement in the amount of \$65,933.00 with a transfer to the Oakland County Treasurer in the amount of \$13,350.00
5. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$2,082.00
6. Other business
7. Approve pro rata payment to Drainage Board members
8. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE WILMONT DRAIN**

December 13, 2022

A meeting of the Drainage Board for the Wilmont Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held October 25, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$357,930.00 for the Wilmont Drain (as attached) were presented. It was moved by Markham, supported by Woodward, to adopt the Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$357,930.00 as presented.

ADOPTED: Yeas - 3
Nays - 0

Construction Estimate No. 1 for Trojan Development Company, Inc. for Maintenance of the White Horse Lake Weir Replacement in the amount of \$147,602.00 with a transfer to the Oakland County Treasurer in the amount of \$13,350.00 was presented. It was moved by Markham, supported by Woodward, that Construction Estimate No. 1 for Trojan Development Company, Inc. for Maintenance of the White Horse Lake Weir Replacement in the amount of \$147,602.00 with a transfer to the Oakland County Treasurer in the amount of \$13,350.00 be approved as presented.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$12,842.00 (as attached) was presented. It was moved by


Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$12,842.00.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.



Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Wilmont Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Wilmont Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

Jim Nash, Oakland County Water Resources Commissioner
Wilmont Relief Drain Drainage District
For Maintenance of the Wilmont Relief Drain - White Horse Lake Weir Replacement
Waterford Township
Oakland County, Michigan

Construction Estimate No. 2

12/02/2022 to 01/03/2023

Department No. : 6010101
Fund No. : 82510
Project No. : 13632

Account No. : 730373
Program No. : 155020
Activity : STD
Vendor No. : 5297

Contractor :
Trojan Development Company, Inc.
2260 Metamora Rd
Oxford, MI 48371

Contract No. : CON00010022
Date of Contract : 10/25/2022
Completion Date : 7/8/2023

Original Contract Amount: \$267,000.00

Previous Change Order Numbers (none): \$0.00

Change Orders This Estimate Numbers (none): \$0.00

Total Net Change Orders: \$0.00

Adjusted Contract Amount: \$267,000.00

Subtotal To Date: (Sheet 2 of 2 Column 7) \$226,885.00

Less Deductions to Date: (Sheet 2 of 2 Column 7) \$0.00

Gross Estimate: (Work in Place) 84.98% \$226,885.00

Less Amount Reserved: (5% of Adjusted Contract Amount) \$13,350.00

Total Amount Allowed To Date: \$213,535.00

Less Previous Estimates: \$147,602.00

Net Payment Request To Be Paid To Contractor: \$65,933.00

Reserve Payment to Contractor \$0.00

Balance of Contract To Date \$40,115.00 Accounting Auditor:

Less Previous Transfers To Reserve: \$13,350.00

Amount of Current Transfer: \$0.00

Prepared by: Garrett Shafer
Garrett Shafer - Project Engineer

Date: 1/19/2023

Recommended by: Dave Potter, P.E. - Consulting Engineer

Date: _____

Approved by: Michael R. McMahon
Mike McMahon, P.E. - Chief Engineer

Date: 1/19/2023

Approved by Board on: _____

JIM NASH
OAKLAND COUNTY WATER RESOURCES COMMISSIONER

Jim Nash, Oakland County Water Resources Commissioner
Wilmont Relief Drain Drainage District
For Maintenance of the Wilmont Relief Drain - White Horse Lake Weir Replacement
Waterford Township
Oakland County, Michigan

Construction Estimate No. 2		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Contract Item	Bid Quantity	Unit	Unit Price	Quantity This Payment	Total Quantity Previous Estimate	Total Quantity to Date	Total Amount to Date	Total Amount This Payment
1	Mobilization, Bonds & Insurance	1.00	Lump Sum	\$24,090.00	0.16	0.67	0.83	\$19,920.00	\$3,840.00
2	Preconstruction Video Documentation	1.00	Lump Sum	\$1,200.00	0.00	1.00	1.00	\$1,200.00	\$0.00
3	Maintaining Traffic	1.00	Lump Sum	\$800.00	0.00	0.00	0.00	\$0.00	\$0.00
4	Soil Erosion and Sedimentation Control	1.00	Lump Sum	\$4,700.00	0.25	0.25	0.50	\$2,350.00	\$1,175.00
5	Lawn Restoration	1.00	Lump Sum	\$4,100.00	0.00	0.00	0.00	\$0.00	\$0.00
6	Driveway Removal and Replacement	1.00	Lump Sum	\$14,500.00	0.00	0.00	0.00	\$0.00	\$0.00
7	Weir Removal	1.00	Lump Sum	\$17,000.00	0.75	0.00	0.75	\$12,750.00	\$12,750.00
8	Weir Replacement	1.00	Lump Sum	\$200,700.00	0.24	0.71	0.95	\$190,665.00	\$48,168.00
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Change Orders:

						0.0	0.0	\$0.00	\$0.00

Stored Material:

						0.0	0.0	\$0.00	\$0.00

Deductions:

						0.0	0.0	\$0.00	\$0.00

Total Amount to Date	\$226,885.00
Total Amount This Estimate	\$65,933.00
Change Orders to Date	\$0.00
Change Orders This Estimate	\$0.00
Stored Materials to Date	\$0.00
Stored Materials This Estimate	\$0.00
Subtotal to Date	\$226,885.00
Subtotal This Estimate	\$65,933.00
Deductions to Date	\$0.00
Deductions This Estimate	\$0.00
Payment This Estimate	\$65,933.00
Less Transfer to Reserve	\$0.00
Net Payment	\$65,933.00

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the WILMONT RELIEF DRAINS

FROM: Shawn Phelps, Chief of Fiscal Services *for Shawn Phelps*
OCWRC Accounting

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the follwing invoices:

Date	Ref No.	Paid To		Amount
12/1/2022	V # SINV00155217	Fishbeck	Invoice # 418886 - Engineering Services - 12/23/22 - Proj # 1-3632	\$ 2,082.00
			Total	<u>\$ 2,082.00</u>

10. Fortino Drain

AGENDA

DRAINAGE BOARD FOR THE FORTINO DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of October 22, 2019
3. Public Comments
4. Present Special Assessment Roll for the Maintenance of the Fortino Drain in the amount of \$3,497
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE FORTINO DRAIN**

October 22, 2019

A meeting of the Drainage Board for the Fortino Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 22nd day of October, 2019.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Helaine Zack, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None

Minutes of the meeting held May 26, 2015 were presented for consideration. It was moved by Zack, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.


A Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$3,741 for the Fortino Drain (as attached) were presented. It was moved by Zack, supported by Woodward, to adopt the Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$3,741 as presented.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Zack, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Zack and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

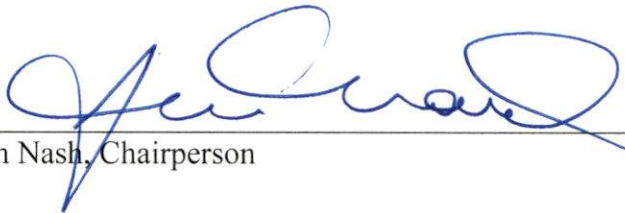


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board of the Fortino Drain, Oakland County, Michigan, held on the 22nd day of October, 2019, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board of the Fortino Drain Drainage District.



Jim Nash, Chairperson

Dated: November 5th, 2019

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MAINTENANCE ASSESSMENT RECOMMENDATION FOR THE
Fortino Drain

Assessment for current fund deficit and estimated maintenance expenses for fiscal years: 2023 through 2025

Date last assessment approved:	10/22/19	
Last Assessment:		\$3,741
Current Available Cash:		(\$197)

Expenditure History:	Fiscal Year	Amount
	2016	\$687
	2017	\$697
	2018	\$852
	2019	\$1,026
	2020	\$1,072
	2021	\$930
	2022	\$970
Estimated Expenditures:	Year	Amount
	2023	\$1,100
	2024	\$1,100
	2025	\$1,100
	Total	\$3,300

Recommended Assessment:

Current Cash Deficit	\$197
Total Anticipated Expenses 2023 - 2025	\$3,300
TOTAL RECOMMENDED ASSESSMENT	\$3,497

Prepared by: Michael R. McMahon Date: 1/24/2023
Michael R. McMahon, P.E. - Chief Engineer

Approved by: _____ Date: _____
Brian Coburn, P.E. - Manager

Note: Current Available Cash as of November 30, 2022, Fiscal Services Division Report.

SPECIAL ASSESSMENT ROLL FOR THE MAINTENANCE OF THE FORTINO DRAIN

Public Corporation	*Percentage of Apportionment	Total Amount of Assessment	Payment #1	Payment #2	Payment #3
Charter Township of West Bloomfield	69.275%	\$ 2,422.55	\$ 2,422.55	-	-
County of Oakland	30.725%	\$ 1,074.45	\$ 1,074.45	-	-
<hr/>					
Total	100.000%	\$ 3,497.00	\$ 3,497.00	\$ -	\$ -

*Apportionment based on Final Order of Apportionment dated 6/9/1982.

Assessment Payment Due Date(s): Payment #1 02/28/2023

I hereby certify that I have prepared the Special Assessment Roll for the Maintenance of the Fortino Drain for the fiscal years 2023- 2025 in accordance with the direction of the Drainage Board and the statutory provisions applicable thereto.

Jim Nash
Chairman of the Drainage Board for the Fortino Drain

The foregoing Special Assessment Roll for the maintenance of the Fortino Drain was approved by the Drainage Board on _____ .

Jim Nash
Chairman of the Drainage Board for the Fortino Drain

11. Hamlin Drain

AGENDA

DRAINAGE BOARD FOR THE HAMLIN DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of May 24, 2022
3. Public Comments
4. Present Special Assessment Roll for the Maintenance of the Hamlin Drain in the amount of \$23,557
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE HAMLIN DRAIN**

May 24, 2022

A meeting of the Drainage Board for the Hamlin Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 24th day of May 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held August 24, 2021, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A memorandum from Lynne Seymour, P.E., Chief Engineer, dated May 24, 2022, requesting the Board to authorize the Chairperson to sign the resolution adopting the final State Revolving Fund project plan was presented. It was moved by Markham, supported by Woodward, to authorize the Chairperson to sign the resolution adopting the final State Revolving Fund project plan as presented.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

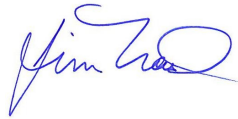


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Hamlin Drain, Oakland County, Michigan, held on the 24th day of May 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Hamlin Drain Drainage District.



Jim Nash, Chairperson

Dated: May 24, 2022

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MAINTENANCE ASSESSMENT RECOMMENDATION FOR THE
Hamlin Drain

Assessment for current fund deficit and estimated maintenance expenses for fiscal years: 2023 through 2025

Date last assessment approved:	02/25/20	
Last Assessment:		\$24,101
Current Available Cash:		(\$7,657)

Expenditure History:	Fiscal Year	Amount
	2016	\$829
	2017	\$767
	2018	\$2,430
	2019	\$2,271
	2020	\$12,601
	2021	\$10,477
	2022	\$7,873

Estimated Expenditures:	Year	Amount
	2023	\$5,300
	2024	\$5,300
	2025	\$5,300
	Total	\$15,900

Recommended Assessment:

Current Cash Deficit	\$7,657
Total Anticipated Expenses 2023 - 2025	\$15,900

TOTAL RECOMMENDED ASSESSMENT	\$23,557
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Prepared by: Michael R. McMahon Date: 1/24/2023
Michael R. McMahon, P.E. - Chief Engineer

Approved by: _____ Date: _____
Brian Coburn, P.E. - Manager

Note: Current Available Cash as of November 30, 2022, Fiscal Services Division Report.

SPECIAL ASSESSMENT ROLL FOR THE MAINTENANCE OF THE HAMLIN DRAIN

Public Corporation	*Percentage of Apportionment	Total Amount of Assessment	Payment #1	Payment #2	Payment #3
Charter Township of Bloomfield	28.56828%	\$ 6,729.83	\$ 6,729.83	-	-
City of Pontiac	57.05391%	\$ 13,440.19	\$ 13,440.19	-	-
County of Oakland	10.72785%	\$ 2,527.16	\$ 2,527.16	-	-
State of Michigan	3.64996%	\$ 859.82	\$ 859.82	-	-
<hr/>					
Total	100.000%	\$ 23,557.00	\$ 23,557.00	\$ -	\$ -

*Apportionment based on Final Order of Apportionment dated 11/9/1966.

Assessment Payment Due Date(s): Payment #1 02/28/2023

I hereby certify that I have prepared the Special Assessment Roll for the Maintenance of the Hamlin Drain for the fiscal years 2023- 2025 in accordance with the direction of the Drainage Board and the statutory provisions applicable thereto.

Jim Nash
Chairman of the Drainage Board for the Hamlin Drain

The foregoing Special Assessment Roll for the maintenance of the Hamlin Drain was approved by the Drainage Board on _____ .

Jim Nash
Chairman of the Drainage Board for the Hamlin Drain

12. Helaine Zack Drain

AGENDA

DRAINAGE BOARD FOR THE HELAINE ZACK DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 15, 2020
3. Public Comments
4. Present Special Assessment Roll for the Maintenance of the Helaine Zack Drain in the amount of \$4,500
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE HELAINE ZACK DRAIN**

December 15, 2020

A meeting of the Drainage Board for the Helaine Zack Drain was held at 2:00 p.m. on the 15th of December, 2020. The meeting was conducted electronically via GoToMeeting in accordance with PA 228 of 2020.

The meeting was called to order by the Chairperson. The Board indicated where they were physically located at the time of the meeting as follows:

PRESENT: Jim Nash, Oakland County Water Resources Commissioner, participating from Farmington Hills, Michigan.

David Woodward, Chairperson of the Oakland County Board of Commissioners, participating from Royal Oak, Michigan.

Helaine Zack, Chairperson of the Finance Committee, Oakland County Board of Commissioners, participating from Huntington Woods, Michigan.

Minutes of the meeting held September 22, 2020 were presented for consideration. It was moved by Zack, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A Special Resolution to close the Drainage District Construction Fund and establish the Maintenance Fund was presented. It was moved by Zack, supported by Woodward, to approve the Special Resolution as presented and authorize the Chairperson to execute said Resolution.

ADOPTED: Yeas - 3
Nays - 0

A Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$66,313.10 for the Helaine Zack Drain (as attached) were presented. It was moved by Zack, supported by Woodward, to adopt the Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$66,313.10 as presented.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Zack, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Zack and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

A handwritten signature in blue ink, appearing to read "Jim Nash", is positioned above a horizontal line.

Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board of the Helaine Zack Drain, Oakland County, Michigan, held on the 15th day of December, 2020, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Helaine Zack Drain Drainage District.



Jim Nash, Chairperson

Dated: December 30, 2020

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MAINTENANCE ASSESSMENT RECOMMENDATION FOR THE
Helaine Zack Drain

Assessment for estimated maintenance expenses for fiscal years: 2023 through 2025

Date last assessment approved:	12/15/20	
Last Assessment:		\$66,313
Current Available Cash:		\$3,075

Expenditure History:	Fiscal Year	Amount
	2016	\$0
	2017	\$0
	2018	\$0
	2019	\$0
	2020	\$0
	2021	\$8,901
	2022	\$114

Estimated Expenditures:	Year	Amount
	2023	\$1,500
	2024	\$1,500
	2025	\$1,500
	Total	\$4,500

Recommended Assessment:

Current Cash Deficit	\$0
Total Anticipated Expenses 2023 - 2025	\$4,500

TOTAL RECOMMENDED ASSESSMENT	\$4,500
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Prepared by: Michael R. McMahon Date: 1/24/2023
Michael R. McMahon, P.E. - Chief Engineer

Approved by: _____ Date: _____
Brian Coburn, P.E. - Manager

Note: Current Available Cash as of November 30, 2022, Fiscal Services Division Report.

**SPECIAL ASSESSMENT ROLL FOR THE MAINTENANCE
OF THE HELAINE ZACK DRAIN**

Public Corporation	*Percentage of Apportionment	Total Amount of Assessment	Payment #1	Payment #2	Payment #3
City of Auburn Hills	98.1000%	\$ 4,414.50	\$ 4,414.50	-	-
County of Oakland	1.9000%	\$ 85.50	\$ 85.50	-	-
Total	100.000%	\$ 4,500.00	\$ 4,500.00	\$ -	\$ -

*Apportionment based on Final Order of Apportionment dated 9/22/2020.

Assessment Payment Due Date(s): Payment #1 02/28/2023

I hereby certify that I have prepared the Special Assessment Roll for the Maintenance of the Helaine Zack Drain for the fiscal years 2023- 2025 in accordance with the direction of the Drainage Board and the statutory provisions applicable thereto.

Jim Nash
Chairman of the Drainage Board for the Helaine Zack Drain

The foregoing Special Assessment Roll for the maintenance of the Helaine Zack Drain was approved by the Drainage Board on _____ .

Jim Nash
Chairman of the Drainage Board for the Helaine Zack Drain

13. Levinson Relief Drains

AGENDA

DRAINAGE BOARD FOR THE LEVINSON RELIEF DRAINS

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of November 26, 2019
3. Public Comments
4. Present Special Assessment Roll for the Maintenance of the Levinson Relief Drains in the amount of \$45,183
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE LEVINSON RELIEF DRAINS**

November 26, 2019

A meeting of the Drainage Board for the Levinson Relief Drains was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 26th day of November, 2019.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: Helaine Zack, Chairperson of the Finance Committee, Oakland County Board of Commissioners

Minutes of the meeting held September 17, 2019 were presented for consideration. It was moved by Woodward, supported by Nash, that the minutes be approved.

ADOPTED: Yeas - 2
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$44,358 for the Levinson Relief Drains (as attached) were presented. It was moved by Woodward, supported by Nash, to adopt the Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$44,358 as presented.

ADOPTED: Yeas - 2
Nays - 0

A request for reimbursement of the Drain Revolving Fund in the amount of \$28,466.73 (as attached) was presented. It was moved by Woodward, supported by Nash, to reimburse the Drain Revolving Fund in the amount of \$28,466.73.

ADOPTED: Yeas - 2
Nays - 0

It was moved by Nash, supported by Woodward, to certify attendance and authorize pro rata payment of \$25 per day to Mr. Woodward.

ADOPTED: Yeas - 2
Nays - 0

There being no further business, the meeting was adjourned.

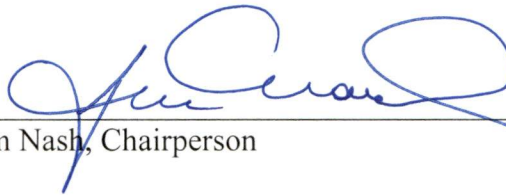


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board of the Levinson Relief Drains, Oakland County, Michigan, held on the 26th day of November, 2019, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board of the Levinson Relief Drains Drainage District.

A handwritten signature in blue ink, appearing to read "Jim Nash", is written over a horizontal line.

Jim Nash, Chairperson

Dated: December 4th, 2019

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MAINTENANCE ASSESSMENT RECOMMENDATION FOR THE
Levinson Relief Drain

Assessment for current fund deficit and estimated maintenance expenses for fiscal years: 2023 through 2025

Date last assessment approved:	11/26/19	
Last Assessment:		\$44,358
Current Available Cash:		(\$28,083)

Expenditure History:	Fiscal Year	Amount
	2016	\$1,407
	2017	\$6,000
	2018	\$2,094
	2019	\$35,571
	2020	\$5,524
	2021	\$4,057
	2022	\$29,808

Estimated Expenditures:	Year	Amount
	2023	\$5,700
	2024	\$5,700
	2025	\$5,700
	Total	\$17,100

Recommended Assessment:

Current Cash Deficit	\$28,083
Total Anticipated Expenses 2023 - 2025	\$17,100

TOTAL RECOMMENDED ASSESSMENT	\$45,183
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Prepared by: Michael R. McMahon Date: 1/24/2023
Michael R. McMahon, P.E. - Chief Engineer

Approved by: _____ Date: _____
Brian Coburn, P.E. - Manager

Note: Current Available Cash as of November 30, 2022, Fiscal Services Division Report.

SPECIAL ASSESSMENT ROLL FOR THE MAINTENANCE OF THE LEVINSON RELIEF DRAIN

Public Corporation	*Percentage of Apportionment	Total Amount of Assessment	Payment #1	Payment #2	Payment #3
Charter Township of Bloomfield	12.32%	\$ 5,566.55	\$ 5,566.55	-	-
City of Auburn Hills	33.24%	\$ 15,018.83	\$ 15,018.83	-	-
City of Pontiac	43.80%	\$ 19,790.15	\$ 19,790.15	-	-
County of Oakland	7.03%	\$ 3,176.36	\$ 3,176.36	-	-
State of Michigan	3.61%	\$ 1,631.11	\$ 1,631.11	-	-
<hr/>					
Total	100.000%	\$ 45,183.00	\$ 45,183.00	\$ -	\$ -

*Apportionment based on Final Order of Apportionment dated 10/24/1995.

Assessment Payment Due Date(s): Payment #1 02/28/2023

I hereby certify that I have prepared the Special Assessment Roll for the Maintenance of the Levinson Relief Drain for the fiscal years 2023- 2025 in accordance with the direction of the Drainage Board and the statutory provisions applicable thereto.

Jim Nash
Chairman of the Drainage Board for the Levinson Relief Drain

The foregoing Special Assessment Roll for the maintenance of the Levinson Relief Drain was approved by the Drainage Board on _____ .

Jim Nash
Chairman of the Drainage Board for the Levinson Relief Drain

14. Montante Drain

AGENDA

DRAINAGE BOARD FOR THE MONTANTE DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of May 19, 2020
3. Public Comments
4. Present Special Assessment Roll for the Maintenance of the Montante Drain in the amount of \$21,148
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE MONTANTE DRAIN**

May 19, 2020

A meeting of the Drainage Board for the Montante Drain was held at 2:00 p.m. on the 19th day of May, 2020. The meeting was conducted via GoToMeeting in accordance with the Governor's Executive Order 2020-75 due to the ongoing COVID-19 pandemic. Commissioner Nash read a brief statement regarding the current health crisis and its impact on the Chapter 20 meetings, which can be found in its entirety under "Drainage District Policy".

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

David Woodward, Chairperson of the Oakland County Board of Commissioners

Helaine Zack, Chairperson of the Finance Committee, Oakland County Board of Commissioners

Minutes of the meeting held August 25, 2015 were presented for consideration. It was moved by Zack, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.


A Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$24,180 for the Montante Drain (as attached) were presented. It was moved by Zack, supported by Woodward, to adopt the Maintenance Assessment Recommendation and Special Assessment Roll in the amount of \$24,180 as presented.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Zack, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Zack and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.




Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board of the Montante Drain, Oakland County, Michigan, held on the 19th day of May, 2020, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Montante Drain Drainage District.



Jim Nash, Chairperson

Dated: June 1 , 2020

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MAINTENANCE ASSESSMENT RECOMMENDATION FOR THE
Montante Drain

Assessment for current fund deficit and estimated maintenance expenses for fiscal years: 2023 through 2025

Date last assessment approved:	05/19/20	
Last Assessment:		\$24,180
Current Available Cash:		(\$5,248)

Expenditure History:	Fiscal Year	Amount
	2016	\$2,223
	2017	\$4,460
	2018	\$2,912
	2019	\$3,591
	2020	\$12,303
	2021	\$2,858
	2022	\$4,842

Estimated Expenditures:	Year	Amount
	2023	\$5,300
	2024	\$5,300
	2025	\$5,300
	Total	\$15,900

Recommended Assessment:

Current Cash Deficit	\$5,248
Total Anticipated Expenses 2023 - 2025	\$15,900

TOTAL RECOMMENDED ASSESSMENT	\$21,148
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Prepared by: Michael R. McMahon Date: 1/24/2023
Michael R. McMahon, P.E. - Chief Engineer

Approved by: _____ Date: _____
Brian Coburn, P.E. - Manager

Note: Current Available Cash as of November 30, 2022, Fiscal Services Division Report.

**SPECIAL ASSESSMENT ROLL FOR THE MAINTENANCE
OF THE MONTANTE DRAIN**

Public Corporation	*Percentage of Apportionment	Total Amount of Assessment	Payment #1	Payment #2	Payment #3
Charter Township of Commerce	59.7900%	\$ 12,644.39	\$ 12,644.39	-	-
Charter Township of West Bloomfield	19.7700%	\$ 4,180.96	\$ 4,180.96	-	-
County of Oakland	20.4400%	\$ 4,322.65	\$ 4,322.65	-	-
<hr/>					
Total	100.000%	\$ 21,148.00	\$ 21,148.00	\$ -	\$ -

*Apportionment based on Final Order of Apportionment dated 6/11/1975.

Assessment Payment Due Date(s): Payment #1 02/28/2023

I hereby certify that I have prepared the Special Assessment Roll for the Maintenance of the Montante Drain for the fiscal years 2023- 2025 in accordance with the direction of the Drainage Board and the statutory provisions applicable thereto.

Jim Nash
Chairman of the Drainage Board for the Montante Drain

The foregoing Special Assessment Roll for the maintenance of the Montante Drain was approved by the Drainage Board on _____ .

Jim Nash
Chairman of the Drainage Board for the Montante Drain

15. Augusta Drain

AGENDA

DRAINAGE BOARD FOR THE AUGUSTA DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of November 15, 2022
3. Public Comments
4. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$3,831.34
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE AUGUSTA DRAIN**

November 15, 2022

A meeting of the Drainage Board for the Augusta Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 15th day of November 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held October 25, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

A memorandum from Lynne Seymour, P.E., Chief Engineer, dated November 15, 2022, requesting the Board authorize the Chairperson to accept the Clean Water State Revolving Fund grant funding and authorize Hubbell, Roth, and Clark to commence work outlined in the November 3, 2022, proposal for \$160,000 was presented. It was moved by Markham, supported by Woodward, to authorize the Chairperson to accept the Clean Water State Revolving Fund grant funding and authorize Hubbell, Roth, and Clark to commence work outlined in the November 3, 2022, proposal for \$160,000 as presented.

ADOPTED: Yeas - 3
Nays - 0

A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$3,650.94 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$3,650.94.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

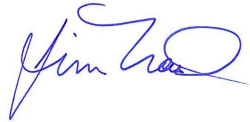


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Augusta Drain, Oakland County, Michigan, held on the 15th day of November 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Augusta Drain Drainage District.

A handwritten signature in blue ink, appearing to read "Jim Nash", is written above a horizontal line.

Jim Nash, Chairperson

Dated: November 15, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the AUGUSTA DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *FL For Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

<u>Paid To</u>	<u>Reference</u>	<u>For</u>	<u>Amount</u>
Hubbell, Roth, & Clark, Inc	TBP	Invoice # 0203228 - Contracted Services - 01/07/23	\$ 3,831.34
		Total	<u><u>\$ 3,831.34</u></u>

16. Borden Drain

AGENDA

DRAINAGE BOARD FOR THE BORDEN DRAIN

January 24th, 2023

1. Call meeting to order
2. Approve minutes of meeting of January 25, 2022
3. Public Comments
4. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$6,083.65
5. Other business
6. Approve pro rata payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE BORDEN DRAIN**

January 25, 2022

A meeting of the Drainage Board for the Borden Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 25th day of January 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

David Woodward, Chairperson of the Oakland County Board of Commissioners

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 16, 2021 were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

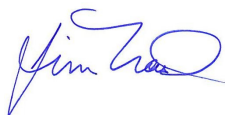
A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$34,789.76 (as attached) was presented. It was moved by Markham, supported by Woodward to approve the payment of invoices and reimbursement of the Drain Revolving Fund in the amount of 34,789.76.

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

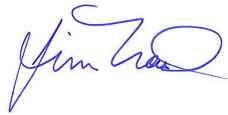


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Borden Drain, Oakland County, Michigan, held on the 25th day of January 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Borden Drain Drainage District.



Jim Nash, Chairperson

Dated: January 25, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the Borden

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *For Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

	Ref No.	For	Amount
City of Troy	TBP	Invoice # 2022-23000002 - Contracted Services	\$ 6,083.65
		Total	\$ 6,083.65

17. Holland Drain

AGENDA

DRAINAGE BOARD FOR THE HOLLAND DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of April 26, 2022
3. Public Comments
4. Present request for Board approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$8,359.37
5. Other business
6. Approve pro rata payment to Drainage Board Members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE HOLLAND DRAIN**

April 26, 2022

A meeting of the Drainage Board for the Holland Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 26th day of April 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

ABSENT: David Woodward, Chairperson of the Oakland County Board of Commissioners

Minutes of the meeting held October 26, 2021, were presented for consideration. It was moved by Markham, supported by Nash, that the minutes be approved.

ADOPTED: Yeas - 2
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

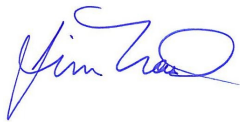
A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$19,375.63 (as attached) was presented. It was moved by Markham, supported by Nash, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$19,375.63.

ADOPTED: Yeas - 2
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham.

ADOPTED: Yeas - 2
Nays - 0

There being no further business, the meeting was adjourned.




Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Holland Drain, Oakland County, Michigan, held on the 26th day of April 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Holland Drain Drainage District.



Jim Nash, Chairperson

Dated: April 26, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the HOLLAND DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *For Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

<u>Payable To</u>	<u>Reference</u>	<u>For</u>	<u>Amount</u>
Hubbell Roth & Clark Inc	TBP	Invoice # 0195369 - Engineering Services - 03/19/22	\$ 1,550.99
Hubbell Roth & Clark Inc	TBP	Invoice # 0195986 - Engineering Services - 04/16/22	2,296.49
Hubbell Roth & Clark Inc	TBP	Invoice # 0198065 - Engineering Services - 06/11/22	4,511.89
			<u>\$ 8,359.37</u>

18. Northwest Oakland Sanitary Sewer Drain

AGENDA
DRAINAGE BOARD FOR
THE NORTHWEST OAKLAND SANITARY SEWER DRAIN

January 24, 2023

1. Call meeting to order
2. Approve minutes of meeting of December 13, 2022
3. Public Comments
4. Present request for Board approval of payment of invoices and/or reimbursement from the Drain Revolving Fund the amount \$2,119.50
5. Other business
6. Approve pro rate payment to Drainage Board members
7. Adjourn

**MINUTES OF THE MEETING OF THE DRAINAGE BOARD
FOR THE NORTHWEST OAKLAND SANITARY SEWER DRAIN**

December 13, 2022

A meeting of the Drainage Board for the Northwest Oakland Sanitary Sewer Drain was held in the office of the Oakland County Water Resources Commissioner, Public Works Building, One Public Works Drive, Waterford, Michigan at 2:00 p.m. on the 13th day of December 2022.

The meeting was called to order by the Chairperson.

PRESENT: Jim Nash, Oakland County Water Resources Commissioner

Gwen Markham, Chairperson of the Finance Committee, Oakland County Board of Commissioners

David Woodward, Chairperson of the Oakland County Board of Commissioners

ABSENT: None.

Minutes of the meeting held November 15, 2022, were presented for consideration. It was moved by Markham, supported by Woodward, that the minutes be approved.

ADOPTED: Yeas - 3
Nays - 0

Chairperson Nash asked if there were any public comments. There were none.

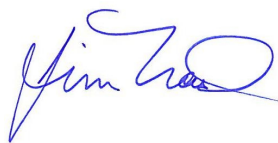
A request for approval of payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$1,698.50 (as attached) was presented. It was moved by Markham, supported by Woodward, to approve the payment of invoices and/or reimbursement of the Drain Revolving Fund in the amount of \$1,698.50

ADOPTED: Yeas - 3
Nays - 0

It was moved by Nash, supported by Markham, to certify attendance and authorize pro rata payment of \$25 per day to Ms. Markham and Mr. Woodward.

ADOPTED: Yeas - 3
Nays - 0

There being no further business, the meeting was adjourned.

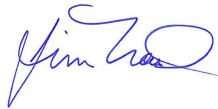


Jim Nash, Chairperson

STATE OF MICHIGAN)
)SS.
COUNTY OF OAKLAND)

I, the undersigned, do hereby certify that the foregoing is a true and complete copy of the minutes of the Drainage Board for the Northwest Oakland Sanitary Sewer Drain, Oakland County, Michigan, held on the 13th day of December 2022, and that the minutes are on file in the office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that the notice of the meeting was posted at least 18 hours in advance of the meeting at the office of the Oakland County Water Resources Commissioner which is the principal office of the Drainage Board for the Northwest Oakland Sanitary Sewer Drain Drainage District.



Jim Nash, Chairperson

Dated: December 13, 2022

MEMO TO: Mr. Jim Nash, Chairman
of the Drainage Board for the NORTHWEST OAKLAND SANITARY DRAIN

FROM: Shawn Phelps, Chief of Fiscal Services
OCWRC Accounting *for Shawn Phelps*

DATE: January 24, 2023

SUBJECT: Request for Board approval of payment of the following invoices:

Date	Ref No.	Paid To	For	Amount
1/10/2023	V # SIN00153975	Dickinson Wright PLLC	Invoice # 1762804 - Legal Services - 11/30/22 - Proj # 1-7076	\$ 1,619.50
	TBP	Rowe Professional Services Company	Invoice # 106361 - Contracted Services -11/1/22 - 11/30/22	500.00
			Total - Proj #1-7076	\$ 2,119.50